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The Monthly Magazine For Sanyo MBC-550 and 555 Users

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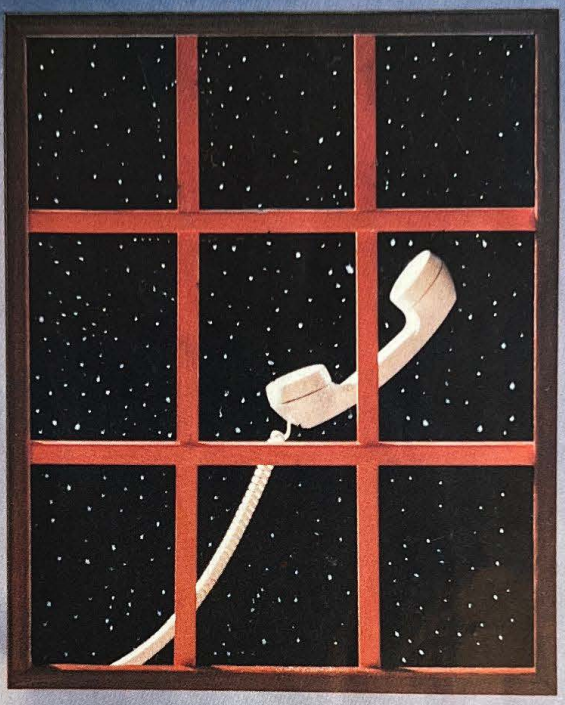

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The Monthly Magazine for Sanyo MBC-550 and 555 Users

Vol. I, Issue 3 October 1984

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Technical Assistant Ed Ellers
Art Director Neal C. Lauron
Assistant Art Director Peggy Henry
Design Staff Jerry McKiernan, Kevin Quiggins
Advertising Coordinator Charlotte Ford (502) 228-4492
Advertising Representatives Maralyn Backus (313) 332-5450, Kate Tucci (502) 228-4492
Advertising Assistant Debbie Baxter

Advertising and Marketing Office for the Western states and provinces: Cindy Shackleford, director, 12110 Meridian South, Suite 8, P.O. Box 73-578, Puyallup, WA 98373-0578. Phone: (206) 848-7766. Territories included: AK, AZ, CA, CO, HI, ID, MT, NV, NM, OR, UT, WA, WY, Canadian Provinces of Alberta, British Columbia, Saskatchewan.

SOFT SECTOR is represented in the New England states and New York by Garland Associates, Inc., P.O. Box 314, S.H.S., Duxbury, MA 02331, (617) 934-6546. Territories included: CT, ME, MA, NH, NY, RI, VT.

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Editorial Director James E. Reed
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SOFT SECTOR — The Monthly Magazine for Sanyo MBC-550 and 555 Users is published every month of the year by FPSS, Ag. Publishing Enterprises, Inc., 9529 U.S. Highway 42, P.O. Box 385, Prospect, KY, 40059. Phone (502) 228-4492. **SOFT SECTOR — The Monthly Magazine for Sanyo MBC-550 and 555 Users** and the **SOFT SECTOR** logotypes are trademarks of FPSS, Ag.

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Subscriptions to **SOFT SECTOR — The Monthly Magazine for Sanyo MBC-550 and 555 Users** are $28 per year in the United States. Canadian and Mexican rates are U.S. $35. Surface mail to other countries is U.S. $64, air mail U.S. $85. All subscriptions begin with the next available issue.

Payment accepted by VISA, MasterCard, American Express, Cash, Check or Money Order in United States currency only.

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LETTERS TO THE EDITOR

Letters To The Editor are always welcome. Please keep them short if possible and we will try to answer some of the questions in this column. Others may be left open for solutions by other users. In order to make space for as many letters as possible, we reserve the right to edit submissions.

Letters can be sent to Soft Sector, P.O. Box 385, Prospect, KY 40059.

ALIVE AND WELL

Editor:

Perhaps you know what happened to Arthur Shebar, director of marketing at Sanyo? In your premier issue, he referred to himself as the national sales manager for Sanyo's computer division. I first learned of him through an interview he did in the May '84 issue of *Microcomputing*. Could it be that he no longer works for Sanyo — or possibly his lawyers didn't let him get away with it when he said, "Sanyo wishes to announce to everybody that we'll prosecute, to the fullest extent of the law, anybody caught not disseminating computer knowledge."

About a month ago, the dealer who sold me my system called long distance to tell me that he had finally received the elusive *MS-DOS Reference Manual* and that the *BASIC Reference Manual* was still back-ordered. Five minutes into looking the manual over, I realized that it was for MS-DOS 1.25. I noticed that the Assemble command was missing from *DEBUG*, one of the many differences between 1.25 and 2.11 documentation. They describe a disk which includes the system files with the usual utilities such as *EXE2BIN* and *SYS*, etc., and a utility package that has four files: *MASM, LINK, CREF* and *LIB*. With so much to spend one's money on these days, I would have gladly paid the $40 for this outdated documentation if I could also get the Assembler that was designed for the Sanyo 550/555.

Last week I called Sanyo Business Systems in New Jersey to confirm a rumor that had been passed on to me about the Macro Assembler. I was told that "if I send $2.50 and a formatted diskette to Sanyo and describe my system, they will send me the Macro Assembler that they fully document in the *MS-DOS Reference Manual*."

This couldn't be further from the truth . . . I guess! I really don't know. After 25 minutes of long distance holding and being passed to three different people who didn't know either, I requested that if anyone knew the information I needed, to please have them call me. I have yet to hear from Sanyo.

I cannot help but wonder if this daring spokesman for Sanyo was as concerned about the dissemination of rumors and misinformation that is so prevalent within the microcomputer industry today.

Arthur, where were you when I needed you!

G.L. Swearingen
Tampa Bay, FL

Editor's Note: Sanyo was asked to respond in order to pass along the information to the readers.

Editor:

In response to G.L. Swearingen's letter — yes, there is an Arthur Shebar and he's alive and well at Sanyo.

The *DEBUG* program for MS-DOS 1.25 is different from that of MS-DOS 2.11. The most important difference is the absence of the Assemble command. Therefore, it is rightfully not in the manual.

MS-DOS normally is supplied with the programming utilities *LINK.EXE* and *EXE2BIN.EXE* and the *SYS* program. Unfortunately, they have been left off the system disk provided by the Sanyo factory in Japan. Sanyo Business Systems does provide these utilities and a number of others on a *Utilities* disk. The Macro Assembler *MASM.EXE* is not a part of the MS-DOS package; rather, it is sold separately by Microsoft Corporation. However, the manual for MS-DOS 1.25 that we reproduce, as licensed by Microsoft, does contain documentation on the Assembler, and I think this is where the confusion arises.

I do not know who at Sanyo told Mr. Swearingen that he could purchase *MASM .EXE* from Sanyo for $2.50. He will have to contact a Microsoft dealer to get the product. He should also be sure that he is using MS-DOS 2.11, since the Macro Assembler will not run under DOS 1.

The *Utilities* disk may be obtained from Sanyo by sending a blank, formatted disk and a check for $5 per disk for postage and handling. Be sure to state if you want the utilities for MS-DOS 1.25 or 2.11.

Mark Zeiger
Research and Development Manager
Computer Division, Sanyo
Moonachie, NJ

LOADED DICE

Editor:

I have a strange bug in the *Craps* program (August '84 SOFT SECTOR) — it seems I get a seven on a six die. In other words, three rows of dots, bottom and top, but a centered dot in the middle row. And this dot appears again on other combinations which don't match the point shown on a roll. This happens only on the left die. It has me puzzled.

I'm not a programmer, by the way, and my knowledge of BASIC is very limited. I wondered if this was an error on my part when I typed in the program or really is a bug in the program as printed.

I just totally enjoy and support your expressed editorial policy to publish useful programs and give practical information

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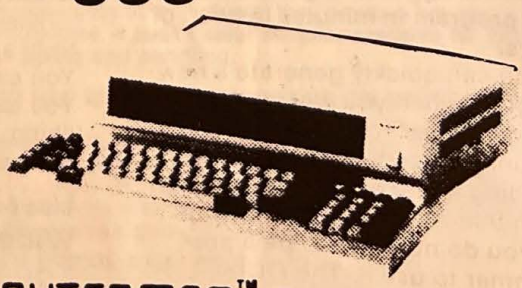
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regarding the machine. Every aspect of the mag is terrific. I think you will be successful, as so many of the other mags in the computer field are either so broad that they are useless or so oriented to excessive advertising and selling their advertisers that it is hard to find good and useful copy.

I can't wait for the next and continuing issues. Much success and congratulations on a superb magazine.

Charles F. Vennel
Los Angeles, CA

Editor's Note: You could get in serious trouble rolling dice with seven spots, Charles. The bug must be in the way you typed in the listing. We can't tell precisely, but the problem must be between Lines 2410 and 2530 or Lines 2710 and 2820. Just closely edit your listing against the original.

THE RUMOR MILL

Editor:

First, I would like to thank you for SOFT SECTOR. I have had my 555 since January and had felt like I was completely alone in my choice of machines. My dealer has been less than helpful with my questions, so it is great to see the help that is, and will be, available through your magazine, and to know that there are lots of others like me out there.

Secondly, a question: Do you know of any plans for Sanyo to market a 550-compatible portable unit? I, for one, would probably buy one. Are you listening, Sanyo?

Kurt Florman
Phoenix, AZ

Editor's Note: Rumors abound, Kurt, but only Sanyo knows for sure . . . and they're not saying.

TO THE DEFENSE

Editor:

We have just finished reading the September issue of SOFT SECTOR and in particular, Letters to The Editor and feel a reply is in order and should be printer in your next issue.

We wish to respond to a letter from a Mr. Robert E. McCoy who took the liberty of your pages to place a black mark on our products. Now I don't really know who this Mr. McCoy is because he is not to be located in our data base of buyers or in our data base of registered owners. He may have purchased our Handbook from a dealer however but didn't register as an owner. In that case, he would have had a chance to review the book and immediately noticed what he calls "poor editing and its' cheapness." He has never contacted us regarding any complaints or even attempted to get his money returned.

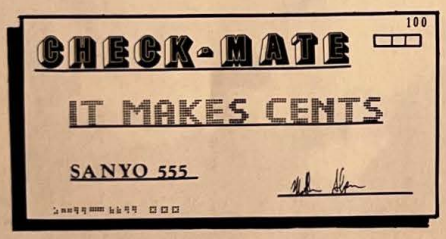
We have sold about 3000 of these books so far and have received no more than a handful of legitimate and bonafide complaints. We have however received a great number of compliments as to its usefulness and good information. We don't however choose like your publication to use space for self serving promotions through our Letters column. Instead, we try to fill our publications with really useful information that subscribers are paying for.

I think our results speak for themselves and that "beauty is in the eyes of the beholder." There will always be those people for whom any publication is inappropriate and therefor will be a disappointed to them. With an abundance of satisfied users on our side, we can only feel correct in our committment and product and don't think the opinion of one user should be allowed to be printed as if it represents the majority. It indeed represents only a very small part of the minority.

Fred Zurofsky, President
Computer User Services
Hackensack, NJ

Continued on page 24

LETTERS



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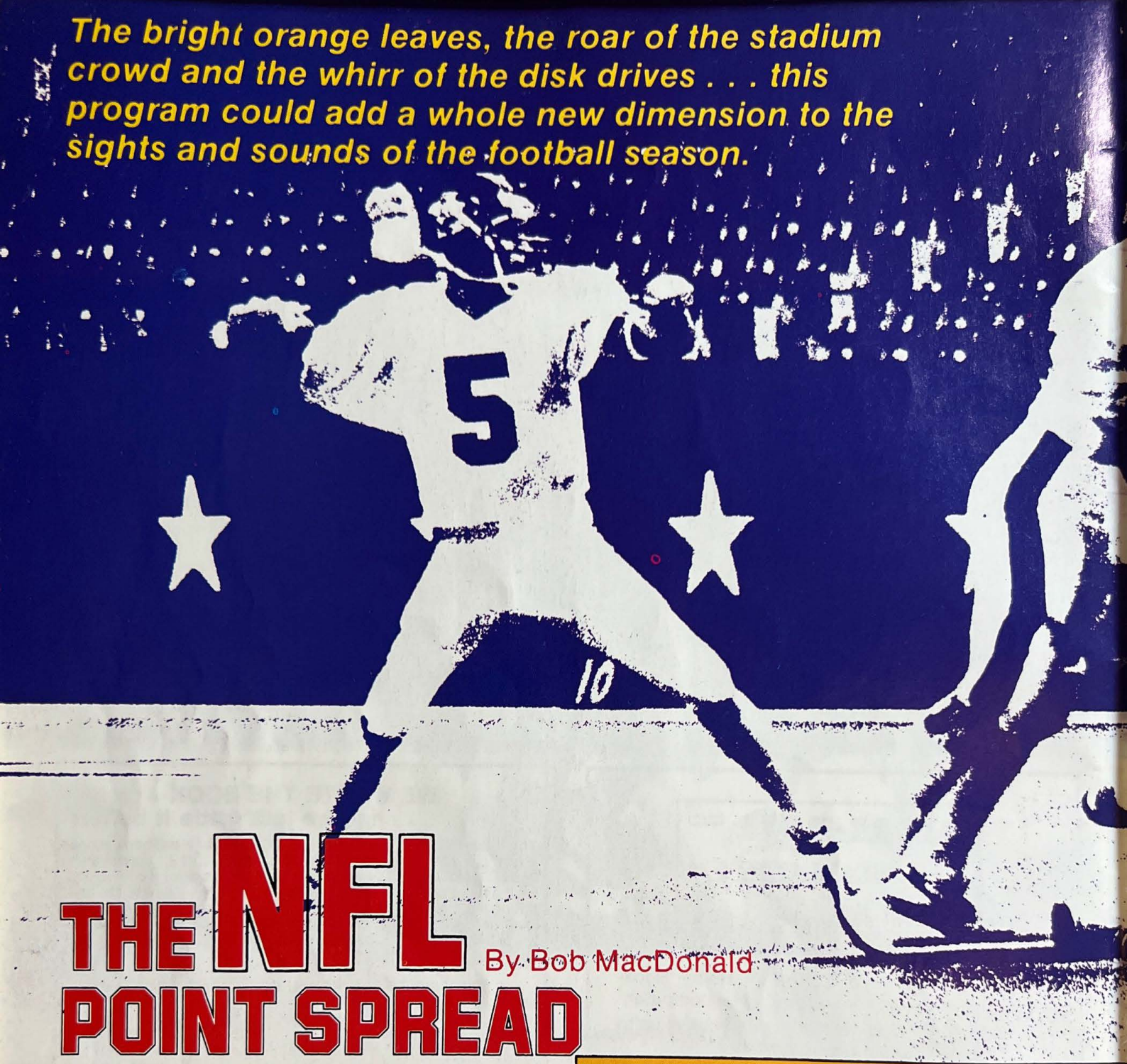
The bright orange leaves, the roar of the stadium crowd and the whirr of the disk drives . . . this program could add a whole new dimension to the sights and sounds of the football season.



THE NFL POINT SPREAD PREDICTOR

By Bob MacDonald

(Bob MacDonald holds a B.S. degree from the University of Tennessee and works as an industrial engineer. His computer hobby has lent itself well to his profession.)

If you're an avid pro football fan and a Sanyo 500 series owner like me, then this program is just what you're looking for. The *NFL Point Spread Predictor* will store a team's weekly performance in various categories and then utilize these statistics to forecast the game winner and point spread for any game played in the National Football League. Once the program has been keyed in and saved, you'll be ready to greatly improve your chances in the office football pool.

After completion of the first week of regular season play, it will be time to start saving the required team statistics. These recap figures can be found in the midweek sports section of most local newspapers. With this information in hand you are ready to begin.

LOAD and *RUN* the program. Select option (U)pdate from the menu. Enter 'Y' at the next prompt and note the team numbering system. All data entries for this program

require the appropriate team number. Having completed this, press ENTER and begin entering the team information. When all the data is entered, or you're ready to take a break, return to the menu and select option (S)ave Updated Statistics. By doing this you have created a data file, *NFLFILE .FIL,* on the disk in the default drive. Remember to start with the (L)oad Past Statistics option to continue later and for all future entries.

As with any statistical analysis, the larger the sample size, the more reliable the results. So at your own discretion, the (P)redict Game Results option will become valid. When the prediction response is "This Game Is Too Close To Call," it's time to use the (V)iew Current Statistics option. Review each teams past performance and remember that the home team normally has a slight, one-point advantage.

I do not follow the USFL, but for those who do, I will outline how to convert this program for your summer enjoyment. Make the following line changes where 'n' is the number of teams in the USFL.

```
 20 Change the array sizes from (28) to (n).
 40 SYMBOL (40,50),"U.S.F.L.",9,4,2
260 OPEN "I",1,"USFLFILE.FIL"
270 FOR X = 1 TO n
1120 OPEN "O",1,"USFLFILE.FIL"
1130, 1170 FOR X = 1 TO n
1550, 1560, 1570 Delete and reenter with USFL team
names and/or cities.
```

Other options I intend to develop later include a screen for divisional standings and a method of entering and storing actual point spreads for comparison to predictions. I'd be interested in seeing these or other enhancements that some of you might develop. Send correspondence to me at Rt. #1, Box 859, Lewisport, KY 42351.

```
10 WINDOW(0,0)-(639,199):CLS
20 DIM TM$(28),YO%(28),YD%(28),PF%(28),PG%(28),WIN%(28),LOSS%(28)
30 FOR X=1 TO 28:READ TM$(X):NEXT
40 SYMBOL(50,50),"N. F. L.",9,4,2
50 SYMBOL(125,100),"POINT SPREAD PREDICTOR",2,2,3
60 LOCATE 23,28:PRINT "WRITTEN BY BOB MACDONALD": FOR X=1 TO 5000:NEXT
70 REM *** MAIN MENU ***
80 CLS
90 LOCATE 4,1:PRINT "THIS PROGRAM WILL LET YOU PICK THE POINT SPREAD OF ANY GIVE
N FOOTBALL GAME"
100 LOCATE 5,1:PRINT "BETWEEN THE 28 TEAMS OF THE NATIONAL FOOTBALL LEAGUE (NFL)
. TO PERFORM "
110 LOCATE 6,1:PRINT "RELIABLY, THE PROGRAM REQUIRES THE RESULTS OF AT LEAST THE
 FIRST FOUR"
120 LOCATE 7,1:PRINT "WEEKS GAMES OF THE REGULAR SEASON. THE MORE RESULTS YOU GI
VE THE PROGRAM"
130 LOCATE 8,1:PRINT "THE BETTER ITS PREDICTIONS WILL BE. THEREFORE IT WILL BE T
O YOUR BENEFIT"
140 LOCATE 9,1:PRINT "TO SAVE THESE STATISTICS FROM YEAR TO YEAR."
150 LOCATE 12,17:PRINT "SELECT AN OPTION BY PRESSING THE APPROPRIATE KEY"
160 LOCATE 15,17:PRINT "<L>OAD PAST STATISTICS"
170 LOCATE 17,17:PRINT "<U>PDATE TEAM FILES. DO THIS AFTER EACH WEEKS GAMES"
180 LOCATE 19,17:PRINT "<P>REDICT GAME RESULTS - POINT SPREAD"
190 LOCATE 21,17:PRINT "<V>IEW CURRENT STATISTICS"
200 LOCATE 23,17:PRINT "<S>AVE UPDATED STATISTICS"
210 LOCATE 25,17:PRINT "<E>XIT PROGRAM"
220 A$=INKEY$:IF A$="" THEN 220
230 ON INSTR("LUPVSE",A$)GOTO 250,330,620,910,1110,1580
240 GOTO 220
250 REM *** LOAD DATA FROM DISC FILE ***
260 OPEN "I",1,"NFLFILE.FIL"
270 FOR X=1 TO 28
280 INPUT #1,YO%(X),YD%(X),PF%(X),PG%(X),WIN%(X),LOSS%(X)
290 NEXT
300 CLOSE
310 GOTO 80
320 REM *** UPDATE STATISTICS ***
330 CLS:LOCATE 14,5:PRINT "YOU WILL NEED TO KNOW THE APPROPRIATE TEAM NUMBERS IN
 ORDER TO UPDATE THE"
340 LOCATE 15,5:PRINT "STATISTICS. DO YOU NEED TO REVIEW THE NUMBERING SYSTEM PR
IOR TO CONTINUING"
350 LOCATE 16,5:PRINT "(Y/N)"
360 G$=INKEY$:IF G$="" THEN 360
370 IF G$="Y" THEN GOSUB 1300 ELSE IF G$="N" THEN GOTO 380 ELSE 360
380 CLS:LOCATE 14,5:INPUT "ENTER NUMBER OF TEAM TO UPDATE: ";X:CLS
390 IF X<1 OR X>28 THEN GOTO 380 ELSE GOSUB 1190
400 LOCATE 4,18:PRINT WIN%(X)
410 LOCATE 6,18:PRINT LOSS%(X)
420 LOCATE 8,18:PRINT WIN%(X)+LOSS%(X)
430 LOCATE 2,17:PRINT TM$(X)
440 LOCATE 15,27:INPUT YO:YO%(X)=YO%(X)+YO:LOCATE 15,38:PRINT YO%(X)
450 LOCATE 16,27:INPUT YD:YD%(X)=YD%(X)+YD:LOCATE 16,38:PRINT YD%(X)
460 LOCATE 20,27:INPUT PF:PF%(X)=PF%(X)+PF:LOCATE 20,38:PRINT PF%(X)
470 LOCATE 21,27:INPUT PG:PG%(X)=PG%(X)+PG:LOCATE 21,38:PRINT PG%(X)
480 IF PF>PG THEN WIN=1:WIN%(X)=WIN%(X)+WIN
490 IF PF<PG THEN LOSS=1:LOSS%(X)=LOSS%(X)+LOSS
500 LOCATE 4,18:PRINT WIN%(X)
510 LOCATE 6,18:PRINT LOSS%(X)
520 WK=WIN%(X)+LOSS%(X)
```

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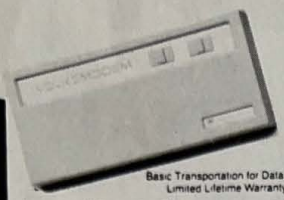

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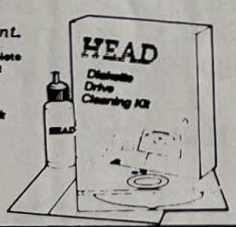

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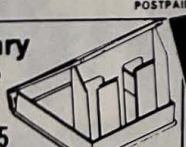

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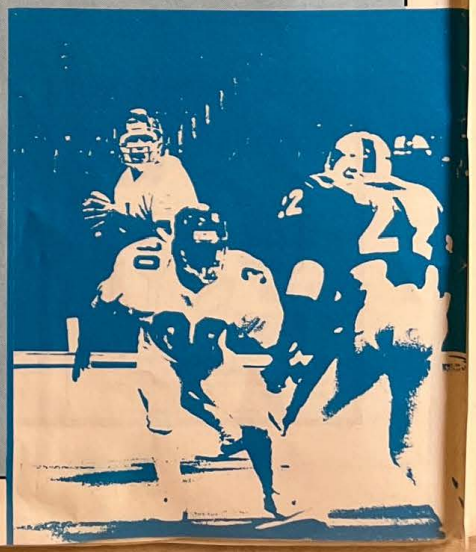
```
530 LOCATE 8,18:PRINT WK
540 LOCATE 15,48:PRINT YO%(X)/WK
550 LOCATE 16,48:PRINT YD%(X)/WK
560 LOCATE 20,48:PRINT PF%(X)/WK
570 LOCATE 21,48:PRINT PG%(X)/WK
580 LOCATE 24,5:PRINT "DO YOU WISH TO UPDATE ANOTHER TEAM (Y/N) "
590 G$=INKEY$:IF G$="" THEN 590
600 IF G$="Y" THEN 380 ELSE IF G$="N" THEN 80 ELSE 580
610 REM *** PREDICT POINT SPREAD ***
620 CLS:LOCATE 8,5:PRINT "ENTER APPROPRIATE TEAM NUMBERS"
630 LOCATE 12,5:INPUT "HOME TEAM    :",Q
640 LOCATE 14,5:INPUT "VISTING TEAM :",Z
650 LOCATE 16,1:PRINT STRING$(80,240)
660 LOCATE 18,20:PRINT TM$(Z);" AT ";TM$(Q)
670 HO=YO%(Q):HD=YD%(Q):HP=PF%(Q):HG=PG%(Q):GH=WIN%(Q)+LOSS%(Q)
680 VO=YO%(Z):VD=YD%(Z):VP=PF%(Z):VG=PG%(Z):GV=WIN%(Z)+LOSS%(Z)
690 IF GH=GV THEN 720
700 CLS:LOCATE 14,2:PRINT "ERROR IN DATA-TEAMS HAVE NOT PLAYED THE SAME NUMBER O
F GAMES. PRESS"
710 LOCATE 15,2:INPUT "<RETURN>",G$:GOTO 80
720 G=GH:HT$=TM$(Q):VT$=TM$(Z)
730 THP=((HO+VD)/(G*2))*7/100:TVP=((VO+HD)/(G*2))*7/100
740 HF=(((HP+VG)/(G*2))+THP)/2:VF=(((VP+HG)/(G*2))+TVP)/2
750 VTC=VP-((VO/100)*7):HW=HP-((HO/100)*7)
760 VQ=VP-((VD/100)*7):HA=HP-((HD/100)*7)
770 HC=HW/G:VC=VTC/G
780 HQ=HA/G:VQ=VQ/G
790 HS=HF+HC-VQ:VS=VF+VC-HQ
800 SP=VS-HS
810 IF ABS(SP)<1 THEN 860 ELSE IF SP<-1 THEN WN$=HT$ ELSE WN$=VT$
820 SPREAD$=STR$(INT(ABS(SP)+.5))
830 PREDICT$=WN$+" BY "+SPREAD$+" POINTS"
840 SYMBOL(25,160),PREDICT$,2,2,3
850 GOTO 880
860 SYMBOL(25,160),"THIS GAME IS TOO CLOSE TO CALL",2,2,2
870 GOTO 880
880 LOCATE 24,5:PRINT "DO YOU WANT TO PREDICT ANOTHER GAME AT THIS TIME? (Y/N)"

890 G$=INKEY$:IF G$=" "  THEN 890
900 IF G$="Y" THEN 620 ELSE IF G$="N" THEN 80 ELSE 880
910 REM *** VIEW ROUTINE ***
920 CLS:LOCATE 14,5:INPUT "ENTER NUMBER OF TEAM TO VIEW: ",X
930 CLS:GOSUB 1410
940 LOCATE 2,18:PRINT TM$(X)
950 LOCATE 4,18:PRINT WIN%(X)
960 LOCATE 6,18:PRINT LOSS%(X)
970 WK=WIN%(X)+LOSS%(X)
980 LOCATE 8,18:PRINT WK
990 LOCATE 10,18:PRINT (INT((WIN%(X)/WK)*100)/100)
1000 LOCATE 16,30:PRINT YO%(X)
1010 LOCATE 16,60:PRINT YO%(X)/WK
1020 LOCATE 17,30:PRINT YD%(X)
1030 LOCATE 17,60:PRINT YD%(X)/WK
1040 LOCATE 20,30:PRINT PF%(X)
1050 LOCATE 20,60:PRINT PF%(X)/WK
1060 LOCATE 21,30:PRINT PG%(X)
1070 LOCATE 21,60:PRINT PG%(X)/WK
1080 LOCATE 23,5:PRINT "WANT TO VIEW ANOTHER TEAM (Y/N)"
```



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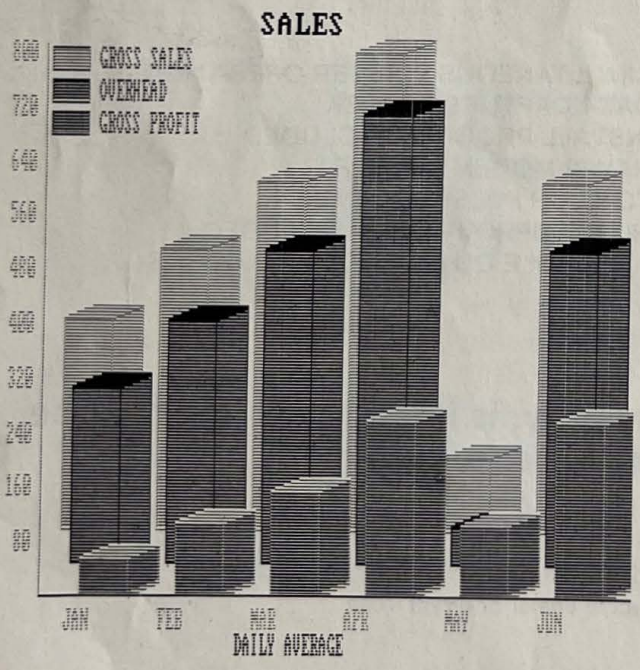

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```
1090 G$=INKEY$:IF G$="" THEN 1090
1100 IF G$="Y" THEN 910 ELSE IF G$="N" THEN 80 ELSE 1080
1110 REM *** SAVE DATA ***
1120 OPEN "O",1,"NFLFILE.FIL"
1130 FOR X=1 TO 28
1140 PRINT #1,YO%(X);",";YD%(X);",";PF%(X);",";PG%(X);",";WIN%(X);",";LOSS%(X)
1150 NEXT
1160 CLOSE
1170 GOTO 80
1180 REM *** UPDATE SCREEN FORMAT ***
1190 LOCATE 2,5:PRINT "TEAM      :"
1200 LOCATE 4,5:PRINT "GAMES WON  :"
1210 LOCATE 6,5:PRINT "GAMES LOST :"
1220 LOCATE 8,5:PRINT "WEEK NO.   :"
1230 LOCATE 10,29:PRINT "THIS" :LOCATE 10,40:PRINT "THIS" :LOCATE 10,50:PRINT "A
VERAGE"
1240 LOCATE 11,29:PRINT "WEEK" :LOCATE 11,40:PRINT "YEAR" :LOCATE 11,50:PRINT "
GAME"
1250 LOCATE 12,29:PRINT "----" :LOCATE 12,38:PRINT "--------" :LOCATE 12,48:PRIN
T "----------"
1260 LOCATE 14,5:PRINT "YARDS:" :LOCATE 15,5:PRINT "OFFENSE" :LOCATE 16,5:PRINT
"DEFENSE"
1270 LOCATE 19,5:PRINT "POINTS:" :LOCATE 20,5:PRINT "SCORED" :LOCATE 21,5:PRINT
"GIVEN-UP"
1280 RETURN
1290 REM *** TEAM NUMBERING FORMAT ***
1300 CLS:ROW=5
1310 FOR X=1 TO 28
1320 IF X=>15 THEN COL=40 ELSE COL=6
1330 IF X=15 THEN ROW=5
1340 IF X<10 THEN COL=7
1350 LOCATE ROW,COL:PRINT X;" ";TM$(X)
1360 ROW=ROW+1
1370 NEXT X
1380 LOCATE 23,5:INPUT "PRESS <RETURN> TO CONTINUE",G$
1390 RETURN
1400 REM *** VIEW SCREEN FORMAT ***
1410  LOCATE 2,5:PRINT "TEAM      :"
1420  LOCATE 4,5:PRINT "GAMES WON :"
1430  LOCATE 6,5:PRINT "GAMES LOST:"
1440  LOCATE 8,5:PRINT "WEEK NO.  :"
1450  LOCATE 10,5:PRINT "WINNING % :"
1460  LOCATE 12,30:PRINT "THIS                    AVG"
1470  LOCATE 13,30:PRINT "YEAR                    GAME"
1480  LOCATE 14,30:PRINT "----                    ----"
1490  LOCATE 16,5:PRINT "OFFENSE YARDS"
1500  LOCATE 17,5:PRINT "DEFENSIVE YARDS"
1510  LOCATE 20,5:PRINT "POINTS SCORED"
1520  LOCATE 21,5:PRINT "POINTS GIVEN-UP"
1530 RETURN
1540 REM *** TEAM NAMES ***
1550 DATA ATLANTA,GREEN BAY,NEW YORK GIANTS,CHICAGO,LOS ANGELES,PHILADELPHIA,DAL
LAS,MINNESOTA,SAN FRANCISCO,DETROIT
1560 DATA NEW ORLEANS,ST LOUIS,TAMPA BAY,WASHINGTON,INDIANAPOLIS,DENVER,NEW ENGL
AND,BUFFALO,HOUSTON,NEW YORK JETS
1570 DATA CINCINNATI,KANSAS CITY,OAKLAND,CLEVELAND,MIAMI,PITTSBURGH,SAN DIEGO,SE
ATTLE
1580 CLS:LOCATE 14,35:PRINT "GOOD LUCK":END
```

THE GREAT COMMUNICATOR — PUTTING THE 550/555 ONLINE

BY R. WAYNE DAY

Communication is something we do every day, probably without thinking about it too much. For example, if you and I are talking and we exchange some meaningful information (like the point spread for the next Cowboys' football game), then we surely have communicated.

Computer owners like yourself are very desirous of communications. You're reading SOFT SECTOR, after all, aren't you? So, what's the deal behind that accessory that Sanyo makes for the MBC-550 series? You know the one I'm talking about — the RS-232 board. Why should you be interested in it; what can it do for you?

The answer is simple, or very complex, depending on how you want to look at it. The simple answer is that the RS-232 board allows you to connect your computer to the "outside world."

Now comes the confusing part for many folks — the RS-232 board allows you to connect your computer to the "outside world." Sounds the same, doesn't it? Why is it so complex?

Once you've decided to hook your computer up to something through the RS-232 port, you're faced with a multiplicity of decisions: which modem to buy, which terminal software to use, etc. What we're going to attempt to do, here and in future articles, is look at the specifics of hooking your MBC-550 series computer up with the general world of "telecommunications," give you an idea of what's available to you, and inform you on how to go about getting it.

In order to use your Sanyo computer as a telecommunications device, you need the aforementioned RS-232 board. This device converts data from the internal bus structure of the computer into a data stream where the bits go out and come back in serially — one at a time.

Doesn't make any sense? Well, think of it this way; your computer itself sends and receives data among the different chips and devices in an arrangement that's known as parallel, where data on the 16 data lines all comes and goes at the same instant. Think of the Olympics, and 16 runners all running along a track at the same speed. All started from the same place, and all are going at the same speed, so they will arrive at the same destination together.

Serial information, though, would be like the swimming relay, where one data bit goes out, followed by another and then another until the whole team has done its thing.

What's that got to do with telecommunications? Well, a few years ago, the Electronics Industry Association, a trade group, decided on a particular set of electrical specifications for computers and peripherals. That set of specifications is known as "RS-232."

In addition, another group of industry representatives decided on a standard "language" whereby one computer can "talk" with another. The American Standards Committee for Information Interchange code (ASCII) was the result.

Those two conventions make it possible for you to connect any RS-232 device to your Sanyo computer, whether or not the accessory was made by Sanyo. For example, I can take the same Hayes Smartmodem 1200 and connect it to my Sanyo, my TRS-80 Model 100, or my Color Computer, and it will work equally well with all of them. That's because all three computers have an RS-232 interface device either built in or as an accessory.

Once you've added the RS-232 board, you'll need three other things in order to get online: a modem (designed to interface with an RS-232 port), terminal software to make your Sanyo talk "ASCII," and a telephone line.

Let's skip ahead here just a bit and explore what you'll be able to find once you've got everything hooked up and working.

One of the most popular online activities for computer owners is the electronic Bulletin Board System (BBS). BBSs come in all shapes and sizes, ranging from those boards that are specialized to one particular computer or subject, to those who try to cover everything of interest to the callers.

BBSs can be an important part in your development as a Sanyo user, for it's on a BBS that you will find other Sanyo owners who can give you the help that you may wind up needing some day. Not everyone lives in an area where a large user group of Sanyo owners can be formed, thus a BBS can serve as the "meeting hall" for an informal group of Sanyo owners. Since most BBSs are online 24 hours a day, you can check in at your own convenience, unlike the "in person" users group, adding to the flexibility that a BBS can offer.

Traditionally, since their beginnings in the late 1970s, BBSs were available to anyone who had the necessary equipment. In the last couple of years, though, there has been an increase in the number of non-public BBS systems, sponsored either by clubs and available to their members only, or by individuals or companies who partially finance the operation of the BBS through user fees.

Besides the local BBS systems, which usually are limited to one person using the BBS at any one time, there are the nationwide information services like

The ability to communicate at levels higher than other species is what has allowed man to evolve into dominance. With this in mind, we take our first steps into a brave new age . . . .

(Wayne Day, a traffic engineering signal technician, is the SYSOP of the Color SIG of CompuServe, the world's largest consumer information service. He is also a certified paramedic and works part-time for an emergency medical service provider. His amateur radio operator call sign is WA5WDB.)

CompuServe and The Source. Both CompuServe and The Source offer a wide variety of information products to their customers, including online shopping, travel planning, newsletters and newspapers, as well as a variety of financial news and information services. CompuServe, though, has the added attraction of Special Interest Groups (SIGs): gigantic BBS systems that are not limited to one person at a time.

One such SIG on CompuServe is of particular interest to Sanyo owners: the IBM SIG, located on page PCS-131 of CIS. In Section 9 of the IBM SIG (each SIG can have up to 11 different message and database sections) you'll find the Sanyo users on CompuServe. Already, quite a few Sanyo users are showing up, exchanging messages and public domain programs in the SIG's database area.

Additionally, the SIG has a feature known as "conference," where SIG users can converse among themselves in real-time. What I type on my terminal, for example, is seen by all of the users who have logged on to that particular conference channel, and with 31 channels available for use, there can be quite a few simultaneous conversations going on.

Both The Source, owned by the publishers of *Reader's Digest*, and CompuServe, owned by H&R Block, Inc., the income tax folks, are commercial operations that charge you for the time you are connected to their service, with additional charges for premium services. The Source costs $20.75 per hour during normal business hours for 300 Baud service and $25.75 for prime time 1200 Baud service. During non-prime hours (evenings, weekends and holidays) the cost drops to $7.75 and $12.75 for 300 and 1200 Baud service, respectively. There is also a one-time charge of $100 for establishing an account with The Source.

CompuServe charges are also set up into two categories, prime time and non-prime time. Charges are $6.25 per hour for 300 Baud and $12.75 for 1200 Baud service during non-prime hours. Prime-time charges amount to $15.25 for 1200 Baud service and $12.75 for 300 Baud service.

You can establish a CompuServe account by purchasing either a starter package that contains five free hours of access time from various dealers and computer stores, or by purchasing a CompuServe/Dow Jones Information Service Universal Sign-Up Kit (Stock #26-2224) for $19.95. This package includes one free hour's access on both CompuServe and the Dow Jones Information Service.

Dow Jones, provided by the publishers of the Wall Street Journal, is geared to the investment community, featuring a wide variety of financial news and information reports, as well as the current and historical stock price information. It also charges you based on the time you are on the service, with additional premium charges for special services.

Those three nationwide information services are the ones that probably will appeal most to Sanyo owners. There are also specialized services such as MCI Mail, Dialog, After Dark and others, which we'll look at in the future.

Getting back to the basics for a moment, let's take a quick look at the terminal program and the modem, the other two things you absolutely must have to go online.

The single most important aspect of your enjoyment of telecommunicating will be your terminal program, and what features it has or does not have will determine what you can do when you go online. The terminal program converts your input on the keyboard into electrical pulses that are sent to the modem,

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where they are converted into audio tones that can be sent along the telephone lines to the remote host computer. In return, the modem receives audio tones from the other computer, be it CompuServe or another Sanyo user's computer, and converts those tones back into serial data, where the terminal program decodes the information and puts it on the screen so you can see it. Flexibility may be built into the terminal program so that files can be transferred to and from your computer, or so that you can print out the information you receive, and so forth.

So, in a nutshell, that's what you need to join the ever-growing number of computerists who have found that modeming across an electronic America can offer information not available by other methods. Hopefully, in the future, we'll help you join this facet of the "electronic revolution."

Current Nibbles

Currently I'm aware of at least two BBS systems that are dedicated to the Sanyo user, and know of at least one more that should be available soon.

As mentioned in the premier edition of SOFT SECTOR, the New York Sanyo Users Group is sponsoring the Sanyo Electronic Bulletin Board (SEBB), 24 hours a day at (212) 596-5802.

Access to SEBB is available at either 300 or 1200 Baud and the group advises that they have a number of features available to the BBS users, including a public domain upload/download section. Membership is required and an annual fee of $36 is charged. For more information you can contact the group at (212) 855-9029.

In the upper Midwest, Michigan Software is running the Novi Download BBS, another 300/1200 Baud BBS, at (313) 348-4479, also available 24 hours a day. Though no fee is charged for membership, Ralph Landry, the Systems Operator (SYSOP) of the BBS is requiring users to call the store during normal business hours (10-5 on Monday, 9-7 Tuesday through Friday, Central Time) in order to receive a password that will allow full access to the BBS. Their voice phone number is (313) 348-4477.

Having to call for a password, by the way, may seem like an unnecessary hassle for some users, but it can be an effective way of making sure that folks who gain access to the BBS are going to use the service in an orderly fashion and not attempt to "crash" the system, as has happened to many public BBSs. Thus, having folks who will not attempt to hurt the BBS online ensures that the service will be available for all of the members.

In the near future, the Denver Area Sanyo Users Group will be putting their new BBS online also. Access will be limited to members, with a $15 annual fee. This will, however, include full membership in the Denver group, including their newsletter. Jerry Smith is the SYSOP of the BBS and can be reached at a voice telephone number of (303) 424-7499. The BBS number is (303) 431-0051.

If you know of any other BBS systems that would be of interest to other Sanyo users, be sure and let us know about them. Please provide as much information as possible, including the hours of operation, Baud rates available, and whether or not the BBS is public or private (or semi-private).

In the future, we'll take a look at another specialized information service, one that's sure to give you lots of time to play with . . . the Naval Observatory in Washington, D.C.

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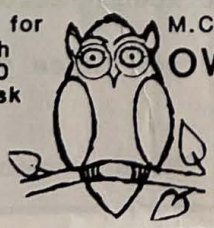

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At the risk of leaving behind some of the more faint of heart, we now take our first excursion into . . .

Assembly Language For Sanyo BASIC

By Mark M. Zeiger

This article describes a way of loading machine language routines into memory so that they can be interfaced to BASIC programs. It also describes how to pass arguments to and get values from these routines.

Loading Machine Language Routines Into Memory

Many BASIC interpreters have what is sometimes called a "BLOAD" command. This routine will load an executable machine language program residing in a disk file into memory. Unfortunately, Sanyo's BASIC for the MBC-550 does not contain this feature. The BASIC manual suggests that you code the machine language instructions in *DATA* statements and then use the *READ* and *POKE* commands to enter the code into memory. This means you must first use an assembler to create the program, then create an LST file in order to determine the Hex codes for each instruction and, finally, copy the machine code shown in the LST file into the *DATA* statements. And, naturally, each time you change the program you must go through all these steps again (one small addition or change in machine code may necessitate many other changes). After going through this procedure only once, I said to myself, "There's got to be a better way!"

There is! The solution is to create a *COM* file using the assembler and then use BASIC's random file read to get each byte and poke the value into memory. The program segment below does just this.

```
10   CLEAR 10                      : ' Clears 10 paragraphs for machine
                                   : '   language routines (1 para = 16 bytes).
20   DEF SEG                       : ' Sets segment for PEEKs, POKEs, and
                                   : '   machine language CALLs.
30   GOSUB 1500                    : ' Call BLOAD routine.
40     -                           : ' Continue with program.
50     -
60     -
1000 END
1500 '
1510 ' ************************************
1520 ' *                                  *
1530 ' *    BLOAD simulation              *
1540 ' *                                  *
1550 ' ************************************
1560 '
1570 ON ERROR GOTO 1680            : ' In case the file is not on disk.
1580 OPEN "R",#1,"MOUSE.COM",1     : ' Random file access - record length
1590 FIELD #1, 1 AS CODE$          : '   is 1 byte. Byte is read into CODE$.
1600 SIZE = LOF(1)                 : ' LOF(1) returns file size in bytes.
1610 FOR I% = 1 TO SIZE
1620   GET #1, I%                  : ' First record in file is record number 1.
1630   POKE I%-1, ASC(CODE$)       : ' First byte POKEd into location 0 in
1640 NEXT I%                       : '   machine language segment
1650 CLOSE #1
1660 ON ERROR GOTO 0               : ' This turns off error checking.
1670 RETURN                        : ' We're done.
1680 IF ERR = 53 THEN PRINT        : ' Error 53 is "File not found" error.
     "MOUSE.COM not found"
1690 IF ERR <> 53 THEN PRINT       : 'Just in case another error takes place.
     "Error # ";
     ERR; " on line ";ERL
1700 RESUME 1000                   : ' Transfers control to END statement.
```

Line 1680 checks to see if a "File not found" error has occurred. If, by chance, a different error occurs, the error type and the line where it occurs will be printed. Line 1660 has the effect of turning off the exception handling, thereby allowing the BASIC interpreter to process all errors for the rest of the program.

Also note that the character in *CODE$* must be changed into an integer value before being put in memory (Line 1630). This means that actually two bytes are being *POKEd* (the actual byte followed by either a 0 or 0FFH, depending upon whether the most significant bit of *CODE$* is reset or set). This is really no problem since the next *POKE* will overwrite that extraneous byte. Finally, be sure to adjust the parameter of the *CLEAR* command (Line 10) so that enough memory is freed to accommodate the *COM* file.

Calling Machine Language Routines In BASIC

By far the most common reason for using an assembly language routine in a BASIC program is for speed. You might have deduced from the BLOAD filename that I am trying to control a mouse in BASIC. I needed a routine to draw the mouse on the screen (BASIC does this so slowly that the movement of the mouse is not smooth) and a routine to read the position of the mouse. The actual movement of the mouse is read by an interrupt service routine; therefore I needed a routine to set the interrupt vectors and the initial mouse position. In a future article, I will describe the BASIC graphics program which uses the mouse and the machine language routines used by that program. In this article, however, I will just explain the methods of passing information to and from these routines.

The format of Sanyo BASIC's machine language *CALL* command is:

```
CALL start_addr, parameter_1, parameter_2, . . .
```

"StartAddr" is the offset address of the first byte of the assembly language routine (the segment address is set by the *DEF SEG* command). This is followed by any number of parameters. These parameters *must* be variables and are passed by "reference" to the routine. This means that the address of the variables (and not the value of the variable) are passed to the routine. These addresses are passed on the 8088 stack as double word values (DATA SEGMENT : OFFSET ADDRESS) followed by a "long" call to the routine. Upon returning, the stack must be adjusted so that the parameters are not logically present on the stack. Therefore the return instruction used should be:

```
RET 4 * (number of parameters) ;where RET is a far return
```

This does the return and then adds the indicated number to the stack pointer. Also, the only registers that need be preserved by the machine language routine are the segment registers DS, ES and SS.

An example is probably now in order to make things clearer.

Consider the problem of initializing the mouse. Since it is an RS-232 mouse, the Sanyo's 8251 USART must be initialized, the interrupt vector set, and the initial mouse position must be set. I will not discuss the first two since they require no parameters. However, the initial position requires that a horizontal and vertical position be specified. Therefore the call for "mouse" initialization in BASIC is:

```
10 X% = 320          : ' Place mouse in middle of screen
20 Y% = 100
30 CALL 0, X%, %Y : ' Call the machine language routine at
                     : ' position 0
```

Note that the parameters must be variables. *CALL 0, 320, 100* is illegal.

Upon entry to the routine, since the parameter addresses are pushed onto the stack from left to right, the stack appears as follows:

IP of return address	<— Stack pointer	Low Memory
Code segment of return addr	Stack pointer + 2	
Offset address of Y%	Stack pointer + 4	
Segment address of Y%		
Offset address of X%	Stack pointer + 8	
Segment address of X%		High Memory

The following routine will get the values in *X%* and *Y%* and place them in memory so that other machine language mouse routines may use and update the initial values.

(Mark Zeiger is the research and development manager for Sanyo Business Systems Corp. His expertise with assembly language programming and the 550 series is well established.)

```
CSEG    SEGMENT

        ASSUME  CS:CSEG, DS:NOTHING

MOUSE   PROC    FAR             ;entry points for all mouse routines

        CALL    INITIALIZE      ;initialization routine
        CALL    READ            ;routine to read mouse position
        CALL    MOUSEMOVE       ;routine to move mouse image
        CALL    DEINITIALIZE    ;routine to restore original interrupt
                                ;  vector when program is done

XPOS    DW      ?               ;holds horizontal position
YPOS    DW      ?               ;holds vertical position
SWITCH  DB      ?               ;holds state of mouse buttons 1 and 2
```

```
INITIALIZE:
            -                   ;perform UART initialization
            -                   ;  and set interrupt vectors
            -

                                ;now get initial positions from stack and store
        MOV     CX,DS           ;segment registers must be preserved
        MOV     BP,SP           ;standard INTEL calling conventions
                                ;  to get parameters of the stack
        LDS     BX,[BP+4]       ;segment address of Y% in DS and offset
                                ;  address of Y% in BX
        MOV     AX,[BX]         ;value of Y% in AX
        MOV     CS:YPOS,AX      ;store initial vertical position locally
                                ;the segment override is not really needed
                                ;  here since the assembler includes this
                                ;  because of the ASSUME DS:NOTHING directive
        LDS     BX,[BP+8]       ;segment address of X% in DS and offset
                                ;  address of X% in BX
        MOV     AX,[BX]         ;value of X% in AX
        MOV     CS:XPOS,AX      ;store initial horizontal position locally

        MOV     DS,CX           ;restore DS
        RET     8               ;far return and then take 8 bytes (2
                                ;  addresses of 4 bytes each) off stack
```

The *X%* and *Y%* positions and the state of the buttons of the mouse will be constantly updated by RS-232 interrupts (the routines are not listed here). In order to read these positions the BASIC statement *CALL 3, X%, Y%, SW%* will jump to the third byte of the machine language area. Control will then be passed to the read routine and the stack will appear as follows:

```
IP of return address            <-- Stack pointer       Low Memory
Code segment of return addr
Offset  address of SW%          Stack pointer + 4
Segment address of SW%
Offset  address of Y%           Stack pointer + 8
Segment address of Y%
Offset  address of X%           Stack pointer + 12
Segment address of X%                                   High Memory
```


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```
READ:   MOV     CX,DS           ;preserve DS
        MOV     BP,SP           ;use Base Pointer to address stack

        LDS     BX,[BP+12]      ;get pointer to X%
        MOV     AX,CS:XPOS      ;get current horizontal position
        MOV     [BX],AX         ;store value in BASIC variable

        LDS     BX,[BP+8]       ;get pointer to Y%
        MOV     AX,CS:YPOS      ;get current vertical position
        MOV     [BX],AX         ;store value in BASIC variable

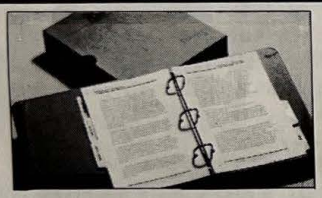
        LDS     BX,[BP+4]       ;get pointer to SW%
        MOV     AL,CS:SWITCH    ;SWITCH is a byte variable
        CBW                     ;convert to an integer since this is
        MOV     [BX],AX         ;  smallest value type BASIC handles

        MOV     DS,CX           ;restore DS
        RET     12              ;adjust stack for 3 parameters
MOUSE   ENDP

CSEG    ENDS

        END
```

If you want to start fooling around with assembly language to help optimize response time in BASIC, I hope some of these hints have been of help to you. In particular, the BLOAD function should take much of the drudgery out of actually creating the machine code you wish to use.



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LETTERS
LETTERS

Continued from page 7

ONE DIP OR TWO?

Editor:

I own a Sanyo MBC-555 and am presently using a Gorilla monochrome monitor. According to your hint in the August issue of SOFT SECTOR ("Using a Monochrome Monitor?"), both of which I read with real interest, you said, ". . . locate the DIP switch assembly marked DTS-4. Set switch 1 on the DIP switch to ON and the other three to OFF."

Curious over this information, I did run the *WSCOLOR.BAS* program and readily noticed the flashing effect you had described. On closer inspection, however, I found a DIP switch assembly marked KTDO 4 instead of the DTS-4 anticipated. This KTDO 4 DIP switch assembly has its #1 and #4 switches set to ON and the others OFF.

Going no further, I must ask the basis for this variance in DIP switch assemblies, the difference in settings, and just what effect any adjustment may have elsewhere in my computer. I'd hate to fry my system!

David C. Uhley
Quantico, VA

Editor's Note: The KTDO 4 DIP switch assembly that you mention and the DTS-4 are the same; the initials are a supplier designation of some type and may vary on different assemblies. The number is what counts, so ignore the letters. Also, the switch adjustment has no other effect on the computer.

COMMUNICATION BREAKDOWN

Editor:

I would like to determine if anyone has been able to receive an order from Huron Systems, a company which advertised in the premier issue. I placed an order with this company for disks which, as of this writing (three weeks later) I have still not received. Most alarmingly, not only are they not listed with Pontiac, Mich. Directory Assistance, the private, third-party answering service which accepts their orders refuses to divulge any number with which a customer can contact a company representative. Two direct phone calls left for their attention over the last two weeks have gone unanswered and a letter sent to the listed address has also been ignored.

Is anyone else experiencing this difficulty with this company?

Dan Webber
Rolla, MO

Editor:

I received a letter from you today concerning an order placed by Mr. Dan Webber. The day the order was taken, a complete order processing form was filled out. Mr. Webber chose to pay by VISA. Due to the relative newness of our company, we were

experiencing difficulties establishing VISA and Master Card lines. I did, in fact, attempt to inform Mr. Webber of this inconvenience but, *ironically*, I could only reach *his* answering service. The only reason we have an answering service is because we are in the process of establishing a new location.

I was informed by Mr. Webber that he had sent a letter to me discussing his dissatisfaction with the delay. No such letter was ever received by our company. We were already making every possible appropriate action to convenience Mr. Webber.

I feel the real problem here was lack of communication rather than fault exclusively on one side. We are truly sorry this has happened.

David Stevenson
Huron Systems
Pontiac, MI

Editor's Note: Mr. Webber informed us that he was contacted by Huron Systems and received his order two days later.

FASTLOAN REVISITED

Editor:

I would like to thank the readers for their nice responses to my articles in the August, 1984 issue of SOFT SECTOR. I would also like to take this opportunity to reply to a common question which many readers are asking about *FastLoan*. They ask how to get a printout (or "hard copy") of the results. Good question!

The simplest way to do this is to change the appropriate program lines of *FastLoan*, namely by changing the occurrences of *PRINT* to *LPRINT*. (Query: Does any reader know a way to have both screen and printer output without having to use both *PRINT* and *LPRINT* commands in the program? On a TRS-80, you can do this by the "dual" command of TRS-DOS.)

To make the changes, list the program, or part of it. Then use the arrow keys on the numeric keypad to do full screen editing. Note that if you touch an arrow/number key and get a number printed, hit BREAK or backspace. Then touch the NUM LOCK key. Consult the manual if this is not clear.

Reader Bruce White, an English professor, suggested an alternative method which is not peculiar to the Sanyo and is good for editing BASIC programs on other machines as well.

Save *FastLoan* in ASCII by *SAVE "FASTLOAN/ASC",A*. Next, load a word processor such as *Easywriter*, then *FAST LOAN/ASC*. Use the search and replace function to change all occurrences of *PRINT* to *LPRINT*.

My own criticism of Prof. White's approach is that you probably do not want to change all the statements, and since there are not really that many, it is probably just as easy to use screen editing in BASIC.

As always, I remind readers that I will answer relevant questions (less mathematical or technical ones should go directly to SOFT SECTOR) if they enclose a stamped, self-addressed envelope. Address: 129 Carol Drive, 18411.

Michael W. Ecker, Ph.D.
Clarks Summit, PA

WRITE VS. PRINT

Editor:

In "The Dialectic Difference" in the premier issue of SOFT SECTOR, Fred Blechman states that commas surrounded by quotation marks must be used as delimiters in Sanyo BASIC when writing to a disk file. A simpler way to write the file is to use the *WRITE* command instead of *PRINT*. For example:

```
100 OPEN "O",#1,"B:DATA"
110 WRITE #1,VARA;VARB;VARC;
    . . . VARZ
120 CLOSE #1
```

Note that semicolons, not commas, are used as delimiters.

Reading from the file uses the statements Blechman used in his article. For example:

```
200 OPEN "I",#1,"B:DATA"
210 INPUT #1,VARA,VARB,VARC,
    . . . VARZ
220 CLOSE #1
```

Continued on page 60

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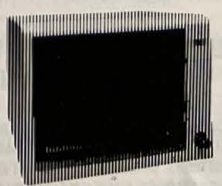

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Continuing in our second month of 'BASIC Training,' the Sanyo forces must now move on to higher ground.

Investigating

BASIC TRAINING

By Fred Blechman
Soft Sector Contributing Editor

Although humans can get very tired doing the same thing over and over, a computer excels at repetitive tasks. As a matter of fact, even when it appears to be doing nothing, the computer internally is constantly at work status-keeping, scanning and updating its memory, looking for new input from the keyboard or disks, waiting to serve. The internal clock is counting, ready at any time for you to request the time and date on the screen with a *?DATE$,TIME$* command in BASIC.

Your Sanyo 550/555 is an obedient servant, never complaining or asking for a "raise." Just feed it with the required electronic elixir of 120 volts AC power and its fan will purr softly, waiting for your command.

In this article we're going to put the 550/555 to work, having it perform electronic acrobatics by putting it through the "loops."

Getting Looped

If you've ever flown in an airplane doing a loop, you know how disorienting it can be. Unless perfectly accomplished, at the top of the loop you may be hanging by your seatbelt as the ground comes up behind you and passes overhead. Weird!

(Fred Blechman, an acknowledged authority on home computers, has written several articles and books related to microcomputers. He is self-taught in electronics and computer BASIC programming and specializes in writing for beginners.)

So are computer loops. Until you practice with them a few times, they can be very confusing, especially since a computer can be performing many loops within each other at the same time!

Type this short program into your 550/555:

```
10 CLS
20 PRINT X
30 X=X+1
40 GOTO 20
```

When you type *RUN* and press ENTER, the screen clears and the computer displays a zero, followed by numbers increasing by one, running down the left side of the screen, until you press the BREAK key.

Incrementing And Decrementing

Line 10, of course, clears the screen. Line 20 *PRINTs* the current value of the variable *X*. Since all simple variables are set to zero with the *RUN* command, the first number displayed is a zero.

Line 30 "increments" (increases) the value of *X* by one. It does this in a manner offensive to any mathematician, but easy to follow with a simple explanation. Although *X=X+1* certainly looks odd to anyone familiar with math (where both sides of an equation are exactly equal), BASIC uses a different interpretation. The value on the left side of the equal sign is a "new" value for that variable, determined by the instructions on the right side of the equal sign. What this line says to the computer is, "Establish a new value for the variable *X* equal to the old value of the variable *X*, plus one." You will see this kind of thing throughout BASIC programs, so just learn to accept it. Bear in mind, however, that *X+1=X* will not work. The simple variable to the left of the equal sign must be by itself.

Line 40 tells the computer, in no

For/Next Loops

uncertain terms, to *GOTO* Line 20, where the new value of *X* is *PRINTed*. This is called "unconditional branching," since no choice is given. The Line 20 *PRINT* statement has no delimiter at the end, so the next displayed number is on the next screen line.

The program keeps looping back on itself, processing only Lines 20, 30 and 40, until you press BREAK. This is called an "endless loop," although it would eventually "crash" when the maximum number (greater than one followed by 38 zeros!) is finally reached.

After pressing BREAK you can *CONTinue* the program from where it was, without resetting variables, by typing *CONT* and pressing ENTER. If you have changed the program between BREAK and *CONT*, the computer will return a "Can't continue" error message.

Minor Changes — Major Effects

LIST this program on the screen and, using the cursor control (small arrow) keys on the right side of the keyboard, move the cursor up to Line 20, then over to the end of the line and type in a comma. Press BREAK to exit the editing mode, and then press PF4 to see the program *RUN*. Now you have five columns of numbers. Change the comma at the end of Line 20 to a semicolon and you'll get numbers with two spaces between them (since Sanyo BASIC prints numbers with a leading and trailing blank space reserved for signs).

Now add these lines:

```
35 IF X=100 THEN GOTO 50
50 PRINT:PRINT"100 loops
completed!"
```

With these lines added, two things happen. The program now has a limited count, established by Line 35, and it ends gracefully with a sign-off message. Line 35 illustrates "conditional branching" since there is an *IF* involved. This program line compares the new value of *X* (incremented by one each time through the loop) with the value of 100. *IF* the new value of *X* equals 100, the program is directed to unconditionally branch to Line 50, jumping right over Line 40 and "escaping" from the endless loop it was in. The status message is *PRINTed* and the program ends.

"Hey," you say, "only 99 loops were completed!" Don't overlook the zero at the beginning. You must get used to zero being a valid number in computing.

Speedup, Countdown And Doubling

The Sanyo will do what you tell it to. You instructed it to count by one in Line 30. Change that to:

```
30 X=X+2
```

RUN the program and watch it count by two. Of course, the sign-off message is now incorrect, since only 50 loops were completed. Change the *X=X+2* in Line 30 to *X=X+3* and when you *RUN* it, Line 35 is ignored altogether — because the value of *X* jumps from 99 to 102 and is never equal to 100! You'll need to BREAK the program.

There are several ways to correct this. You could change the 100 in Line 35 to 102. You could also use a "greater than" comparison, as you'll see shortly.

How about "decrementing" — counting down? Change the *X=X+3* in Line 35 to *X=X-3* and *RUN* the program. Notice how the space in front of each number is now occupied with a minus sign? Line 35 is ignored, so you'll need BREAK to stop the program.

You can also use a mathematical expression to increment or decrement the value of the variable. Change Line 10 to *CLS:X=1*. Put a comma in place of the semicolon in Line 20, change Line 30 from *X=X-3* to *X=X*2*, and *DELETE* Lines 35 and 50. The program now looks like Listing 1.

It's necessary to establish the value of *X* as one (Line 10), since *X* is doubled in Line 30 and zero doubled is still zero. The comma at the end of Line 20 gives us a five zone display. The asterisk (*) in Line 30 is the computer symbol for multiplication. This line multiples the previous value of *X* by two each time through the loop.

When you *RUN* the program now, you'll get a display like Figure 1 at the end of this article. The program *PRINTs* five columns of strange looking numbers, then *BEEPs* and stops with the error message "Overflow in 30."

The first numbers, reading from left to right, top to bottom (the way the computer *PRINTs*), are obviously "powers of two" — each number is double the previous number.

However, starting with *1.04858E+6*, "scientific notation" is used to show the numbers. The *E* indicates an "exponent" is to follow, and the exponent is expressed either as a negative or positive number. These are "powers of 10" and can be thought of as the number of places to the left (negative exponent) or right (positive exponent) that the decimal point should be moved to obtain the actual number. This might mean adding zeros.

For example, *1.04858E+6* shown in regular decimal notation would be 1048580. The decimal is moved six places to the right, adding a zero, since the exponent notation is *E+6*. Notice that this is not exactly equal to two times the previous number of 524288. That result would be 1048576, not 1048580!

The explanation has to do with the

Editor's Note: This article is based on material from a forthcoming book by the author, Sanyo MBC-550/555 Beginner/Intermediate Guide, *soon to be published by Holt, Rinehart and Winston, a division of CBS College Publishing.* Copyright © 1984 by Fred Blechman.

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way Sanyo BASIC handles numbers. Unless otherwise specified, numbers are carried internally in "single precision" (seven digits) and then rounded off and displayed using six digits. You'll see that no number on the screen is displayed with more than six digits, although the exponents keep getting larger. Finally, when the number exceeds *1.70141E+38* (as would the last number on the screen doubled) the computer "overflows."

FOR/TO/NEXT Loops

It seems that in BASIC programming, there's always a better way to do something. One of the most common programming devices is the *FOR/NEXT* loop, which actually uses *FOR*, *TO* and *NEXT* to program repetitive operations. Listing 2 shows another way to program the calculation and display of the powers of two. Figure 2 shows the results when *RUN*.

Starting The Loop

Line 100 clears the screen and sets the initial value of the simple variable *X* to equal one. Line 110 starts a *FOR/NEXT* loop with the keyword *FOR*, followed by the assigned variable *L* and the assigned limits, with a *TO* between them. This line says, in English, "Start a loop with the variable *L* equal to zero and increase it by one each time the loop is used until the value of *L* exceeds 21." Since there is no *STEP* at the end of this line, the value of *L* will change by one each time. If the program line had been, say, *STEP 3*, the value of *L* would increase by three each time.

Line 120 *PRINTs* the current value of *L* followed by the text and the current value of *X*. Line 130 then doubles the value of *X*.

Completing The Loop

The *NEXT* in Line 140 returns the program to the previous *FOR* in Line 110. Although the program specifies *NEXT L*, the *L* could be omitted since a *NEXT* will automatically go back in the program to the nearest *FOR* statement and increment that variable.

The program keeps looping back to Line 110 until the value of *L* has increased to 22, when the program "falls through" Line 40 and ends with a Ready on the screen.

The display is actually a table of the powers of two up to the 21st power. You can direct this to your printer by just changing the *PRINT* in Line 120 to *LPRINT*.

$1,000 Elapsed Timer

Listing 3 illustrates a program with "nested" *FOR/NEXT* loops. When you type it in, make sure the spaces shown in Lines 20 and 30 are entered as shown or the numbers on the screen will not appear in the proper position under the headings.

This is a perfect example of computer "overkill." Using a $1,000 computer to replace a $10 digital stopwatch is not reasonable. Not only that, tenths of a second are not displayed (the computer is too slow, at least in BASIC), and the elapsed time that is shown has no long-term accuracy. However, the program is good to illustrate nested loops.

Lines 20 through 40 place a static display on the screen showing the title, headings and an escape message. Lines 100-120 initialize the value of variables *H*, *M* and *S* (designated, not surprisingly, for hours, minutes and seconds).

Line 200 *PRINTs* the starting values below the headings, using blank characters for spacing.

Line 300 is doing all the work. It is counting to itself in a one-second delay loop using the number 635, derived from trial and error. When this line is completed (*T=636*), then Line 400, in a loop with Line 120, advances the value of *S* by one. Line 200 *rePRINTs* the new time, Line 300 delays a second, and then *S* advances again.

When *S* equals 60, the *NEXT M* on Line 400, in a loop with Line 110, advances the value of *M* by one. Then *S* is reset to zero by Line 120 and the process repeats, updated on the screen every second. When *M* equals 60, *H* is increased by one and Line 110 resets the minutes to zero. Figure 3 shows what the screen looks like at one point in time.

This program may seem confusing, but if you puzzle it out you'll never be confused by nested loops again!

Next Month

When we next embark on our journey into BASIC, we'll search out the mysteries of *SUBroutines*, branching and *WHILE/WEND loops*.

Correction

There was a small error in Listing 1 in the September installment of "BASIC Training." In Line 140, following the *PRINT*" there should be 22 spaces and then another set of quotation marks (").

Listing 1

```
10 CLS:X=1
20 PRINT X,
30 X=X*2
40 GOTO 20
```

Listing 2

```
100 CLS:X=1
110 FOR L=0 TO 21
120 PRINT L;"power of 2 =";X
130 X=X*2
140 NEXT L
```

Listing 3

```
10 REM * $1000 Elapsed Timer *
20 CLS:LOCATE 8,20:PRINT "$1 0 0 0   E L A P S E D   T I M E R"
30 LOCATE 12,15:PRINT "Hours              Minutes              Seconds"
40 LOCATE 24,20:PRINT"Press BREAK key to stop....."
100 H=0
110 FOR M=0 TO 59
120 FOR S=0 TO 59
200 LOCATE 14,16:PRINT H;"              ";M;"              ";S
300 FOR T=0 TO 635:NEXT T
400 NEXT S:NEXT M
500 H=H+1:GOTO 110
```

Figure 1

1	2	4	8	16
32	64	128	256	512
1024	2048	4096	8192	16384
32768	65536	131072	262144	524288
1.04858E+06	2.09715E+06	4.1943E+06	8.38861E+06	1.67772E+07
3.35544E+07	6.71089E+07	1.34218E+08	2.68435E+08	5.36871E+08
1.07374E+09	2.14748E+09	4.29497E+09	8.58993E+09	1.71799E+10
3.43597E+10	6.87195E+10	1.37439E+11	2.74878E+11	5.49756E+11
1.09951E+12	2.19902E+12	4.39805E+12	8.79609E+12	1.75922E+13
3.51844E+13	7.03687E+13	1.40737E+14	2.81475E+14	5.6295E+14
1.1259E+15	2.2518E+15	4.5036E+15	9.0072E+15	1.80144E+16
3.60288E+16	7.20576E+16	1.44115E+17	2.8823E+17	5.76461E+17

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```
1.15292E+18    2.30584E+18    4.61169E+18    9.22337E+18    1.84467E+19
3.68935E+19    7.3787E+19     1.47574E+20    2.95148E+20    5.90296E+20
1.18059E+21    2.36118E+21    4.72237E+21    9.44473E+21    1.88895E+22
3.77789E+22    7.55579E+22    1.51116E+23    3.02231E+23    6.04463E+23
1.20893E+24    2.41785E+24    4.8357E+24     9.67141E+24    1.93428E+25
3.86856E+25    7.73713E+25    1.54743E+26    3.09485E+26    6.1897E+26
1.23794E+27    2.47588E+27    4.95176E+27    9.90352E+27    1.9807E+28
3.96141E+28    7.92282E+28    1.58456E+29    3.16913E+29    6.33825E+29
1.26765E+30    2.5353E+30     5.0706E+30     1.01412E+31    2.02824E+31
4.05648E+31    8.11296E+31    1.62259E+32    3.24519E+32    6.49037E+32
1.29807E+33    2.59615E+33    5.1923E+33     1.03846E+34    2.07692E+34
4.15384E+34    8.30768E+34    1.66154E+35    3.32307E+35    6.64614E+35
1.32923E+36    2.65846E+36    5.31691E+36    1.06338E+37    2.12676E+37
4.25353E+37    8.50706E+37
Overflow in 30
```

Figure 2

```
0 power of 2 = 1
1 power of 2 = 2
2 power of 2 = 4
3 power of 2 = 8
4 power of 2 = 16
5 power of 2 = 32
6 power of 2 = 64
7 power of 2 = 128
8 power of 2 = 256
9 power of 2 = 512
10 power of 2 = 1024
11 power of 2 = 2048
12 power of 2 = 4096
13 power of 2 = 8192
14 power of 2 = 16384
15 power of 2 = 32768
16 power of 2 = 65536
17 power of 2 = 131072
18 power of 2 = 262144
19 power of 2 = 524288
20 power of 2 = 1.04858E+06
21 power of 2 = 2.09715E+06
```

Figure 3

```
$1 0 0 0   E L A P S E D   T I M E R

Hours              Minutes              Seconds

  3                  17                   34


        Press BREAK key to stop......
```


```
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Exploring MS-DOS Commands

By Danny Humphress
Soft Sector Technical Editor

Welcome, explorers, to the third day of our trek through the world of MS-DOS. We've been exploring the outer reaches of this new realm, working our way inward uncovering its many riches. Today's journey will take us even further.

In Part II, we began using MS-DOS's commands to format and duplicate disks and to backup the hard disk. Today we're going to explore many more MS-DOS commands to do everything from clear the screen to printing the list of files on a disk.

Let's Get Started

Get (or make) a backup copy of your MS-DOS 2.11 disk and boot your system with it ("boot" is computer talk for "start up"). If you have a hard disk system which automatically boots from the hard disk, boot from the floppy anyway.

Don't forget to enter the correct date and time when MS-DOS asks.

(Danny Humphress, SOFT SECTOR's Technical Editor, is the owner of a computer software and consulting firm in Louisville, Ky. Danny brings to SOFT SECTOR his extensive experience with small business computers and applications software.)

As we have already learned, a disk contains a collection of files. MS-DOS provides a command to allow us to get a list of the files on the disk. With the backup of your MS-DOS disk in drive A:, type:

DIR ENTER

You should get something like what's in Figure 1. *DIR* displays five columns of information. The first column is the filename, the second is a three-character extension,the third shows the size of the file in bytes, the fourth and fifth columns show the date and time that the file was last updated. We talked about filenames in the first installment of Mastering MS-DOS if you would like to refresh your memory at this time.

Suppose you don't care about the size or "change date" of the files — you just want to know which files are on the disk. The "/*W*" wide display switch of the *DIR* command gives you that option. Try:

DIR /W ENTER

The filenames will be displayed across the screen as in Figure 2.

Often there are more files on a disk than can be displayed on the screen at a time — especially when not using "/*W*." *DIR* normally just makes the directory

fly by. When it is finished, only the last 20 or so files are still on the screen, the others having scrolled off the top. Another *DIR* switch solves this problem. "*/P*" causes *DIR* to pause until you strike a key after it displays a full screen of directory listings; it then proceeds to display the directory one page at a time. This format of the *DIR* command is:

DIR / P ENTER

Go ahead and try it.

DIR also allows you to get information on a single file. This extended form of *DIR* is:

DIR pathname

I bet you were wondering when we were going to get to those pathnames you tried so hard to understand in Mastering MS-DOS Part I. Remember, a pathname is the entire path through levels of directories to a file. Our MS-DOS disk only has a single directory now, so the pathname need only be a filespec.

One of the files on every MS-DOS disk is *COMMAND.COM*. Don't worry yourself with what it is now — for our purposes, it's just another file. To find out the size (how much disk space used) of this file and the last change date and time, we would enter:

DIR COMMAND.COM ENTER

DIR will only display information about the file you specified instead of all the files on the disk.

As with all MS-DOS commands, *DIR* will automatically act upon the default drive unless you specify otherwise. When you see "A>" as your MS-DOS prompt, the default drive is drive A:, To obtain a directory of drive B:, you would put the drive designation directly after the *DIR* command as in the following examples:

DIR B:
DIR B:/W
DIR B:COMMAND.COM /P

Figure 1

```
Volume in drive B is SANYO_SYS
Directory of  B:\
COMMAND  COM    16117   9-17-83   1:25p
CHKDSK   COM     6468   9-03-83   3:25p
DEBUG    COM    12146   9-05-83  12:40a
EDLIN    COM     8110   9-17-83   1:33p
FC       EXE     2585   9-03-83   4:21p
FORMAT   COM    11603   1-15-84   9:00a
DISKCOPY COM     3081   1-24-84   9:00a
PRINT    COM     3808   9-03-83   5:55p
BASIC    EXE    46848   2-15-84  12:06a
DEMO     BAS    15488   9-27-83   9:00a
MD2      COM     1074   6-07-84  11:17p
PAYROLL  FIL      640   1-31-84   1:15a
JANOSSY  BAS      640   1-31-84  12:13a
CAT      COM     1727   2-12-84  12:26a
GEMINISD COM     2522   1-01-80  12:00a
FONT     COM     2085   5-29-84   1:49a
GLOBAL   BAK     1408   1-31-84   1:50a
FONT     BAS     4096   5-29-84  11:56p
CRAPS    BAS     8064   1-31-84   3:40a
PAYROLL  BAS     8064   7-04-84   8:02a
ED       BAS      128   1-31-84   9:29a
MTEST    COM      512  10-27-83   9:05a
PERFECT  BAS      512   1-31-84   1:25a
TYPEF    COM      322   4-26-84  11:38a
GLOBAL   BAS     1408   1-31-84   1:50a
       25 File(s)     93184 bytes free
```

Remember, to change the default drive, simply type the drive letter followed by a colon and press ENTER. As an example, to change the default drive to B:, type:

B: ENTER

You can try it if you like. The new MS-DOS prompt will be "B>." To make our upcoming examples work properly, change the default back to A:,

The Joker's Wild

This is a good time to bring up the subject of "wild cards." No, not the kind that has won (or lost) so many poker games for you, but similar in nature. Wild cards are used to replace all or part of a filename. The best way to explain wild cards is by a demonstration. Type the following command:

DIR *.COM ENTER
(Don't forget the period [.])

You should get a listing similar to that in Figure 3. Only the files with extensions of *.COM* are displayed. The asterisk (*) tells MS-DOS "I don't care what goes here."

Try this:

DIR D*.* ENTER

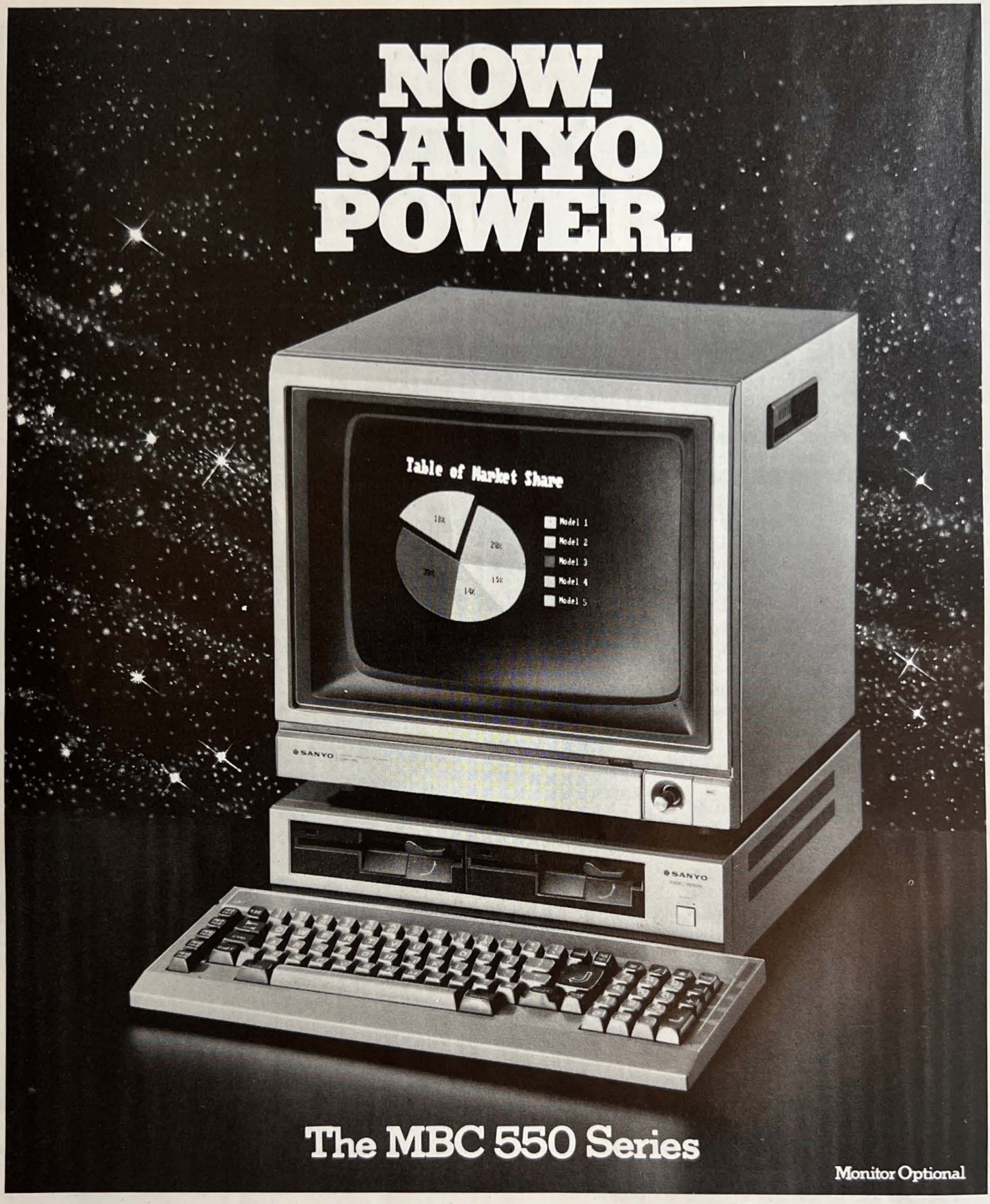
As you can see, you can use the asterisks either in the filename or in the extension or both. The above example

Figure 2

```
Volume in drive B is SANYO_SYS
Directory of  B:\

COMMAND  COM    CHKDSK   COM    DEBUG    COM    EDLIN    COM    FC       EXE
FORMAT   COM    DISKCOPY COM    PRINT    COM    BASIC    EXE    DEMO     BAS
MD2      COM    PAYROLL  FIL    JANOSSY  BAS    CAT      COM    GEMINISD COM
FONT     COM    GLOBAL   BAK    FONT     BAS    CRAPS    BAS    PAYROLL  BAS
ED       BAS    MTEST    COM    PERFECT  BAS    TYPEF    COM    GLOBAL   BAS
       25 File(s)     93184 bytes free
```

NOW. SANYO POWER.



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will give you a list of all files beginning with "D" such as *DISKCOPY.COM* and *DEBUG.COM*.

The asterisks can take the place of many characters. To represent a single or certain number of "mystery" characters, use the question mark (?). Try this example:

DIR *.?X? ENTER

This gives you a list of all files with any filename and an extention having "X" as the second character. This really isn't a practical example of using the question mark wild card — and you very well may not see any practical uses of this wild card now. You'll find, though, that as you use MS-DOS on a daily basis, you'll one day say to yourself "I wish I could . . ." and this wild card will be the answer!

COPYing

In the second installment of Mastering MS-DOS, we made a copy of an entire disk. There are times when you'll need to copy a single file or a group of files to another disk. *COPY* is the MS-DOS command for this purpose. With *COPY*, you can copy everything from a single file to an entire disk (it's a very slow way to copy an entire disk).

We'll need to format a fresh disk to use for these examples. You should be an old pro at formatting by this time. If you need a little reassurance, refer to last month's installment.

Once formatted, put the new disk in drive B:. If you have only a single floppy disk drive, hold on to the new disk for now and leave your MS-DOS backup in the drive.

Type this command:

COPY A:FORMAT.COM B: ENTER

If you have a two-drive system, you'll see the drive-active lights flashing as the file named *FORMAT.COM* on drive A: is copied to drive B:. If you are using a single-drive system, MS-DOS will act as though you have a disk in drive A: and drive B: (even though you have no drive B:) and tell you to swap the disks periodically. At one moment, your floppy disk is drive A: — the next, it's B:. Doing enough of this disk swapping makes you realize the benefits of having more than one floppy disk drive.

The "A:" preceding *FORMAT .COM* could have been omitted in the above example and MS-DOS would have defaulted to A:. (A: is the default drive.) The "B:," however, is mandatory because we are copying to a drive other than the default.

Figure 3

```
 Volume in drive B is SANYO_SYS
 Directory of  B:\

COMMAND  COM     16117    9-17-83   1:25p
CHKDSK   COM      6468    9-03-83   3:25p
DEBUG    COM     12146    9-05-83  12:40a
EDLIN    COM      8110    9-17-83   1:33p
FORMAT   COM     11603    1-15-84   9:00a
DISKCOPY COM      3081    1-24-84   9:00a
PRINT    COM      3808    9-03-83   5:55p
MD2      COM      1074    6-07-84  11:17p
CAT      COM      1727    2-12-84  12:26a
GEMINISD COM      2522    1-01-80  12:00a
FONT     COM      2085    5-29-84   1:49a
MTEST    COM       512   10-27-83   9:05a
TYPEF    COM       322    4-26-84  11:38a
       13 File(s)     93184 bytes free
```

Wild cards can be very effectively used with *COPY*. Say, for instance, that you want to copy all your BASIC programs (which all have extensions of *.BAS*) from drive A: to Drive B:. You would type:

COPY *.BAS B: ENTER

Go ahead and try it. There should be a few BASIC programs on your MS-DOS disk to copy.

To see the results of what we just did, do a directory of drive B:. You should see *FORMAT.COM* along with a few *.BAS* programs.

COPY works in both directions. See if you can evaluate what this command will do and then try it:

COPY B:*.* A: ENTER

Were you right? This command copies all the files on drive B: (*.* is a "total wild card meaning all files with any filename and any extension) to drive A:. Of course, the files were already on drive A:, but it copied over them.

Again, we could have omitted the "A:" in the above example, and *COPY* would have defaulted to drive A: for the same results.

In the examples so far, the copies of the files had the same names as the originals. It is possible and sometimes desirable to give the copy a different name. For example:

COPY A:DISKCOPY.COM B:
COPYDISK.COM ENTER

The file, *COPYDISK.COM* on B: will be an exact copy of *DISKCOPY.COM* on A: with a different name. Using this, it is possible to have more than one copy of a file on a disk. Try this:

COPY A:DISKCOPY.COM A:
COPYDISK.COM ENTER

Take a look at the directory of drive A:, you'll have a new file, *COPY DISK .COM* that is an exact copy of *DISK COPY.COM*. MS-DOS will note let you copy a file onto itself by using the same "source" and "destination" names — there is no need to.

Get This Junk Off The Screen

No, that's not a valid MS-DOS command, but there is a counterpart — *CLS*. *CLS* is one of the simplest MS-DOS commands. There are no strange parameters to remember and no drive names to worry about. It just means "clear screen," and it does just that. It's really handy to make the screen a bit less confusing to view. Try it:

CLS ENTER

You may need to practice with this command for a while — it's pretty complicated!

You have enough ammunition here to begin seriously using MS-DOS, but we've only begun! There are many more useful commands that we'll be discovering next month. Even the very basic commands that we worked with today have other more advanced uses that we'll be taking a look at later in our journey through MS-DOSdom.

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Continuing in our 'Shining Star' series, we now move on to the rest of the package.

Making InfoStar Shine

By Charlotte A. Stone
Soft Sector Contributing Editor

Remember those disks that you got with your 550/555 titled *InfoStar*? Still haven't figured out just what to do with them? Well, this month we're going to put them to use by answering a commonly asked question: "How do I use *InfoStar* to print mailing labels?" And even if you don't have a burning need for a mailing list, by going through the following routines, you can learn to use this flexible program to meet *whatever* needs you may have.

The first step is to use *DataStar* to create a data file and then *ReportStar REDIT* will create a report to print the labels. For example, let's make up a data file called *MAILLIST.DTA*. Start with the part of *DataStar* called *FORMGEN*. You will need to do this even if you already have a data file created by something other than *DataStar*, because *ReportStar* needs a definition file to refer to. If you have such a data file, remember that the definition file we are going to create must match the fields in your existing data file exactly. If you are starting from zero, remember to make the fields in this definition file large enough to hold your maximum data length.

At your system prompt, type *FORMGEN MAILLIST* and press RETURN. Then press CONTROL-J. Our sample form will look like this:

NAME: _____
ADDRESS: _____
CITY: _____
STATE: _____ ZIP CODE: _____
PHONE NUMBER: _____

Type each of the lines above starting with the cursor in line 000, column 000 for the first line, hitting RETURN at the end of each line. Use the underline key or CONTROL-Q to draw the lines for the information fields. Then move the cursor into one of the field areas to assign a key field for sorting. This time, let's use the ZIP code field. When the cursor is in the field, press CONTROL-K. The underlines will change to asterisks, indicating a key field. Now save the form by pressing CONTROL-CC, CONTROL-CD or CONTROL-CB, depending on what you want to do next. CONTROL-CC lets you continue on with the form, revising it or assigning attributes to the data fields; CONTROL-CD lets you chain *DataStar* to enter information in the fields and save records; and CONTROL-CB lets you exit to your operating system.

To create a report to print labels based on the above sample, at your system prompt, type *REDIT MAILABEL* and press RETURN. Then press CONTROL-J. Now you are looking at the *REDIT* file description screen. We are going to tell our report to refer to the definition file we have already created in our sample.

Press RETURN to enter 001. This is the first definition file our report will look at. In this case it will be the only definition file our report will refer to. Type *MAILLIST*. If the name of the definition file did not contain eight letters, you would need to press RETURN to enter the name. Since this one has eight letters, *REDIT* goes automatically to the next prompt which is:

On which disk drive is the definition file located?
(-/A/B . . .)-

Entering a dash or pressing RETURN at the prompt tells *REDIT* that the definition file is the current logged disk drive. Entering the letter of a drive tells *REDIT* that the definition is on that disk drive.

This is the point at which *REDIT* reads the definition file and stores the information it finds there in the report specification file. If you ever make changes in the definition file, you must redo this step to make *REDIT* reread the definition file. The next prompt is:

Is the file going to be used for Input or Output? (I/O) I

In this case, press RETURN for the default answer 'I' for input.

(Charlotte A. Stone, office manager for the Detroit office of the Shaw/Walker Co., has been using a Sanyo 555 in her daily work routine for the past nine months. She and her husband, Brian, have owned and used computers since their first purchase in July 1978; they presently own four systems.)

The next prompt is:

Access data file in Sequence or as Reference File? (S/R) S

Press RETURN for the default answer 'S' for sequential. The report will read all of the records in your data file during the report. If you do not want to print all of the records as labels, that can be handled later.

The next prompt is:

Should the file be read in index order? (Y/N) N

Press RETURN for the default answer 'N' for no. The report will run faster and take less memory running in file order rather than index order.

The next prompt is:

How large should the disk buffer be?

Your choices are 001, 002, 004, 008, 016, 032. If you try to enter a number between these choices, the program will select the next higher legitimate choice. The buffer size allocates memory sectors for temporary data storage during the running of the report. Too small a number will slow down the report. Too large a number takes away memory from your computer. How to determine the best buffer size is another question, so for our purposes, enter 008.

The next prompt is:

Will the file include more than one volume? (Y/N) N

Press RETURN for the default answer 'N' for no. If your actual records are on more than one disk or in separate files on the same disk, the answer would be yes — but let's save that for another question.

The next prompt is:

Will the data file name(s) be entered at run time? (Y/N) N

Press RETURN for the default answer 'N' for no. Our sample has only one data file — let's name it now and get it out of the way. If you have multivolume files, you might want to enter them at run time if you do not want to use them all every time you run labels.

The next prompt is:

Enter the data file name(s):
Disk drive: (?/-/A/B . . .)-

Enter a question mark if the data file will not necessarily be on the same drive each time the report is run. A prompt will appear at run time asking the location of the data file. Enter a dash or press RETURN for this default answer if the data file will always be on the logged disk drive when the report is run. Enter the letter ('A' through 'P') of the specific disk drive the data file will always be found on when the report is run. Something new will be added to the same prompt:

File name XXXX_____

Pressing RETURN will automatically bring up and enter *MAILLIST*, the name of the definition file. Pressing RETURN again will bring up and enter the filename extension *.DTA*.

The next prompt is:

Change disks? (Y/N) N

Press RETURN for the default answer 'N'. Multivolume files or a single drive system might require a yes answer. At run time, a prompt would appear asking for a change of disks in order for the report to find the data file.

The next prompt is:

Enter the condition(s) for record inclusion:
INCLUDE IF

For our sample, press RETURN to include all records in the report. We have finished the file description in our sample. Enter CONTROL-C to go on to the report layout screen. The screen will come up with the cursor in the first line, first column of the drawing area.

We will begin our layout with four dot commands tc remove certain defaults from the report program to make i' easier to print the information where we want it on labels The dot (.) of the dot command is already present in the print control column. So, in the first line of the drawing area enter *MTO*. The dot command *.MTO* means the top margin will be zero lines. With no top margin, printing will begin wherever you manually adjust the labels in your printer.

Using the same method, enter three more dot commands on the next three lines of the layout screen. They are *.MBO*, *.OP* and *.POO*.

The dot command *.MBO* means the bottom margin will be zero lines. For printing labels, you won't want the program to throw in any extra lines. The command *.OP* turns off the automatic page numbering feature and *.POO* removes the automatic page offset, eliminating a side margin so that you can print to the extreme left of your label.

Now we have finished all the dot commands we needed and are ready to draw in the fields. In column 001 of line 005, start to draw in the same size fields as our *MAILLIST* form. We won't be drawing as many fields because we don't want a phone number on our mailing label. We won't draw them in the same pattern, either, because the *MAILLIST* form was formatted for easy data entry, not for the post office. Draw only fields; do not type in any words labeling the fields or they will print on your labels.

Our sample report will look like this:

_____
_____
_____ __ _____

ReportStar numbers the fields left to right, then top to bottom. So for reference, I will be discussing them like this:

_____ (1) _____
_____ (2) _____
_____ (3) _____ __ (4) _____ (5)

Next, we tell our report where to get the information to fill the fields. Move the cursor into field 1 and press CONTROL-R to call up the field definition screen. Prompts will ask you questions about the fields. The first prompt is:

Field number/name: 001/

Press RETURN to enter the field number 001, then type in a field name: for our example, *NAME*. Press RETURN to enter the field name. Next come some prompts you can skip:

Equivalent to field: /
Copy attributes of field: /

Press RETURN four times to skip these answers. Go to the prompt:

Field source: (File/ Calc/ Input) F

Press RETURN to enter the default answer 'F' for file. Information to fill this field will come from a data file. This answer will bring up the following prompt:

File number/ name: /

Type 001. *ReportStar* will display *MAILLIST* after the slash. Press RETURN to enter *MAILLIST* as the filename. The next prompt asks which field in the file has the data for the report field:

Field number/ name: /

Type *001* and press RETURN. If we had assigned attributes to the fields in the definition file for our data file, *ReportStar* would automatically display the field name. The field number is sufficient, though. Another prompt will appear:

Enter pad character:

We do not need to answer any more prompts for this report, so move the cursor to field 2 and answer the same prompts for this next field. Press CONTROL-F to move the cursor. To review the steps:

Press RETURN to enter the report field number 002.
Type *ADDRESS* and press RETURN to name this field.
Press RETURN four times to skip to the field source prompt.
Press RETURN to enter field source 'F'.
Type *001* to display *MAILLIST* as the file source.
Press RETURN to enter the name *MAILLIST*.
Type *002* and press RETURN to enter field 2 from *MAIL LIST* as the data source for this report field.
Press CONTROL-F to move the cursor to the third field and continue as above to define all five fields of our report. Remember, the file number for the field source is always 001 in our sample, but the field number will match the number of the report field you are defining.

When you have finished defining the last field, press CONTROL-C to end the definition and return you to the layout screen. We must enter print control commands for each line of the report. Move the cursor to column 001 of line 005 of the report. Use a CONTROL-S to go back into the print control column. Press the space bar three times to tell *ReportStar* to always print the field lines. Then, depending on the spacing of the labels you are printing on, press the space bar again equal to the number of blank lines you need between the "City, State, ZIP Code" line on one label and the name line on the following label. That's it! You're finished! All you have to do now is get out of the program and save what you've done.

Press CONTROL-C to say "form done." The exit screen will come up. Enter one of the exit commands, 'C' or 'S', to save the report. I always use first a 'C' save and then an 'S' save to get a backup of each report I do.

To print your labels, load the disk with *ReportStar* and this report file, *MAILABEL.RPT*, into the correct drive, load the data file disk correctly, ready your printer, type *REPORT MAILABEL*, press RETURN and "they're off and running."

This sample report prints a single row of labels. A little extra drawing and some equivalent fields and it will print two or more columns of labels.

Advanced Micro-Computer Applications

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REVIEWS

Software review

Intellicom — Fine Features At A Modest Price

Who would have thought reviewing would be so hard? Not me — that's for sure. All the modem cables were sold, the phone system got cranky: It was the old maxim about if it can go wrong . . .

Communications is one of the most interesting facets of Sanyomania: First there were none, now there are many packages that will do the trick. *Intellicom* has some features that make it an interesting alternative to other packages.

The best place to start is with the negative features of the package (so that we end on a positive note). I have mixed emotions about the dial-up method. From the main menu you can select an autodial function, but you then have to specify a directory. Then from your directory you select a letter corresponding to the number you wish to dial. The only problem is that you are to create the directory through *EDLIN* — a less than delightful exercise. I cheated and used *WordStar* (non-document mode) to save some time. I prefer to use a command line, "call 9996666," but can see the utility of booting straight into a menu of frequently-used numbers.

It appears that when using a Hayes Smartmodem (or equivalent) the DTR signal is dropped, causing the modem to prematurely disconnect. There are several ways around this, including reconfiguring the cable. An alternative is to use the terminal mode, which works fine. That, however, obviously does limit your options.

My last complaint deals with the documentation, which is somewhat sketchy in places. It also presumes knowledge that the typical first-time user is unlikely to possess. In all fairness, the new documentation may well address this issue. Jerry Molaver at Computer Toolbox was prompt in responding to my questions, so help from those quarters is readily available.

After getting around these little challenges, the fun begins. I logged on various bulletin boards and downloaded various files. Once you get a handle on how to use *Intellicom*, it really is easy to use.

The ability to include long distance codes in your directory makes use of the program easier, certainly with all the IDs and codes required to get a rate break. The current version can read 15-digit numbers; the new revision will handle up to 30.

The main menu appears as follows:

T - Terminal emulation.
U - Terminal emulation with data capture.
W - CompuServe Executive Terminal.
V - Toggle local echo (on).
D - Toggle local display (on).
F - Toggle printer (off).
G - Toggle com port buffering (off).
S - Checksum protocol file transmission.
R - Checksum protocol file reception.
P - Autodial from phone directory.
A - ASCII file transmission.
B - ASCII file transmission — PTR/PTP protocol.
C - ASCII file reception — PTR/PTP protocol.
X - Intel HEX file transmission.
Y - Intel HEX file transmission — PTR/PTP protocol.
Z - Invoke Disk/File function menu.
E - Exit program.

As can be seen, it is quite extensive, and the new version will contain even more. It should be released by the time of publication of this review. According to Jerry at Computer Toolbox, it will be even easier to use, incorporating new help keys, command line arguments and simpler menu selection procedure. More documentation, with examples, will aid the first-time user.

System requirements are 128K of RAM and one disk drive (160K is fine). *Intellicom* uses less than 50K of disk space, so files can be transferred by a Sanyo 550 with a single, single-sided drive.

The system can be configured with the following variables: Baud rate, parity, stop bits and data bits. A standard set of default parameters can be set for 300 and 1200 Baud by merely typing in "300" or "1200." Other rates can be called up but a set-up specifying all parameters must be used. "SETUP 9600 odd 2 7" is all it takes to invoke set-up procedures for those parameters. Default values will work well most of the time, so novices should not panic.

In reviewing *Intellicom*, I would have to rate the documentation good with room for improvement, and according to Computer Toolbox, clearer documentation will be in the new packages. I would rate the ease of use as only fair, but that improved markedly after Jerry's help, a problem which the new documentation should also address. The support was, obviously, excellent. This adds up to an overall rating of very good for the *Intellicom* program — and the price of $69.95 represents a good value for the capabilities of this package.

(Computer Toolbox, 1325 East Main St., Waterbury, CT 06705, 203-754-4197, $69.95)

— Bill Sawyer

Volksmodem — For The Money, One Of The Best

A computer marketing research organization recently estimated that there will be 2.2 million modems in use by 1985. Together with printers and monitors, modems are the largest selling computer peripherals. Because of the increased demand for these devices, prices continue to drop even as more features are added, which is great for microcomputer users. The entire world of computer communication by use of the telephone lines — "telecomputing" or "telecommunications" — is now available to owners of even the most modest microcomputers. You'll need an RS-232 serial interface and a "terminal program" in addition to the modem.

There are dozens of modems on the market, with a broad variety of prices and features. The "smart" modems, used with appropriate software, can operate at 300 or 1200 Baud and will answer your phone automatically, dial your phone automatically at a preset time, put out a defined sequence of pulses or tones to initiate contact with another computer, and report status to you with a bewildering array of indicator lights.

TEX*COMP offers the Anchor Automation Volksmodem™ for the Sanyo MBC-550/555, with Cable A, for a total price of $68.90 ($59.95 for the modem, $8.95 for the cable). The 300-Baud Volksmodem is not a smart modem, but it's smarter than most "dumb" modems. Instead of having to set an Answer/Originate switch, the Volksmodem selects the appropriate mode automatically. A built-in piezoelectric element generates a distinctive tone when your modem senses that you have lost the other computer's carrier. You can also select "Half Duplex" (one way communication at a time) or "Full Duplex" (both ways at once) with a top-mounted slide switch.

One of the main features of the Volksmodem, however, is the freedom from external power. The sensing and tone generating circuits are powered by the phone line itself, and a small internal nine-volt battery supports the frequency-shift keying levels. The battery drain is so low that the installed battery has an expected service life of about two years — essentially the same as the battery shelf-life! And, just in case, when the battery voltage gets too low for dependable operation, the internal sounder gives you warning.

Cable A is used with the Sanyo MBC-550/555. If you have other computers you wish to use with the Volksmodem, you only need to buy the proper cable. That's why Anchor Automation calls the Volksmodem the "Universal Modem." It solves the modem interface confusion by having a mass-produced (therefore inexpensive) modem with inexpensive non-standard interface cables chosen from a selection guide for your particular computer. Also, so that you don't have the additional expense, a six-foot telephone line cord with a modular plug on each end — needed to complete the Volksmodem connection — is included with each cable.

The Volksmodem is built into a sealed gray plastic case 7.6 inches long by 3.6 inches wide by 1.3 inches high. Even with the nine-volt transistor radio-type battery installed it weighs only 15 ounces. Besides the Half/Full Duplex switch already mentioned, there is also a Talk/Voice switch. This is used to switch between regular phone use and modem operation, and it also shuts off the internal battery power when in the Talk position. (That's another reason the warning tone on disconnect is useful.) On one side of the unit there are two RJ-11 modular telephone jacks marked "Line" and "Phone."

It takes only a minute or so to connect the Volksmodem into your system. First you must install your own battery, since the Volksmodem will not work without one and none is supplied with the unit. The telephone cable that plugs into the back of your telephone is disconnected and plugged instead into the Volksmodem Line jack. Next the telephone cable supplied with your interface cable is plugged into the back of the phone at one end and the Phone jack of the modem on the other end. All that's left now is to plug the five-pin DIN plug end of Cable A into the Volksmodem and then insert the other end, with the DB-25 plug, into your Sanyo's RS-232 Serial I/O jack.

While this all might sound confusing to you, it's really very simple, and the owner's manual supplied with the Volksmodem has easy-to-follow illustrations and instructions. If you don't have modular jacks on your phone line, Radio Shack stores have adapters.

Once the terminal program is loaded into your computer and your modem is connected, you can communicate with most other microcomputers — not just other Sanyos — through the common ASCII code most microcomputers use. Many hundreds of enthusiastic micro owners connect up intelligent modems to their computers to provide local "bulletin boards" on which you can retrieve and leave messages. All sorts of commercial database services are literally at your fingertips. You can even communicate with a gigantic "mainframe" computer like CompuServe, The Source or Delphi. As a matter of fact, the Volksmodem currently comes with a free subscription to The Source — and that normally costs $100! ("You mean I get a $100 subscription to The Source by buying a $60 modem — and the modem is mine to keep?" Yes!)

Using the Volksmodem is easy. You dial the host computer phone number with the Talk/Data switch in the Talk position and then switch to Data when the host's carrier replies. Next, hang up the handset, and go through the normal "logon" procedure. When you finally quit, and the host's carrier stops, the Volksmodem lets you know it with a steady audio tone. This tone, much more obvious than a small light going off (or no indication at all) reminds you to move the Data switch to Talk or your phone would be disconnected from regular use.

I've used the Volksmodem with several computers and have been pleased with its operation. It is easy to connect and easy to use. Although it does not offer the "smart" features and 1200 Baud rate of the $400-and-up modems, it also doesn't take special programming. Just hook it up and you only need to operate one switch (Talk/Data) to operate it. Also, the FCC-approved Volksmodem comes with a first-owner lifetime warranty, which sure beats the typical 90-day warranty of most products.

(TEX*COMP, P.O. Box 33084, Granada Hills, CA 91344, 818-993-5606, $59.95 plus Cable A for $8.95)

— Fred Blechman

Picasso — The Program For The Frustrated Artist

Picasso is a computer graphics program that will amaze and astound you with its capabilities. The program was written and developed by Bill Dunlevy for MichTron and is available now for the price of $99.95. It requires 256K and, although a joystick is recommended, it could more reasonably be called a necessity. Since the program is copy-protected, two copies are supplied on separate disks with a third disk containing several stunning demonstration pictures.

The program does not use keyboard commands as you know them from other graphics programs. Instead, Bill Dunlevy has incorporated joystick control and menus that are pictures. Using the joystick, you go to the picture command you desire and press the button — *presto* — the command is ready to use. Within some of the major command options, subcommands are available and these are called by use of the PF keys or the joystick. It is an easy system and, after a little practice, you should have no trouble going from command to command.

The master menu has 18 major choices (three columns with six rows). Going across the menu, they are: Step Draw, Brush, Mix, Free Hand, Fill, Palette, Zoom, Line, Box, C-Line, Ray, Poly, Text, Switch, Erase, Stamp, Menu, and Other Area. Just below the menu you have two boxes showing the current "brush" pattern and the current "palette color." Below that, the program shows the current cursor location (i.e., X-Y coordinates; 376,142). Each menu choice is represented by a picture and the text in small print just below it. To choose an option, you move the white square frame over the command and press the joystick button. You have the command at your control on your canvas. The canvas is square (approximately 400 by 200 pixels), if you have the menu option on. If the menu option is off, the canvas is your full screen (640 by 200). This program has unlimited capabilities and is so fantastic that I cannot do it the justice that it deserves in this short space. I will take you quickly through the different command options and screens to give you a flavor of the program and hopefully you can "draw" some conclusions as to the program's power and potential.

The Step Draw command has two options: PF1 is Paint Using Current Brush and PF2 is Paint Using Black (Erase). This mode lets you paint pixel by pixel using the joystick or, for fine detail, the cursor control keys.

The Brush command gives you a choice of shapes from a single pixel to stars, ovals, circles, doughnuts, etc.: About 25 in all and, if that isn't a sufficient choice, any ASCII character between zero and 255 may be specified. Then you can choose the X-Step and Y-Step increments, which sets the number of pixels that the cursor will move with each step, and the"brush size," which can be any value between one and nine, nine being nine times the normal size. You then have the option of setting the "brush density" between zero and 100 percent. This effect is very much like the action of an airbrush and allows for infinite shading possibilities.

The Mix command is used to get the current color for your palette. There are 64 pre-mixed colors displayed and any one may be chosen. If one of these is not what you are looking for, you can mix one of your own choosing and a square at the bottom displays the overall effect as you are mixing it. Over 10,000 different color are available.

The Palette menu block lets you save the mixed color and the Random command will paint random colors in the row specified by the rectangle cursor. The Copy command will either copy the premixed color to the palette or copy one designated row of color dots to the other three rows of the palette. Upon returning to the main menu it now shows the new palette in the lower right-hand block.

The Free Hand command is similar to the Step Draw command except faster. It also uses the PF1 and PF2 versions of the Step Draw command. The Fill command does just what you might expect — fills an outline with the current palette color or any one of the Sanyo's eight solid colors.

The Zoom command gives you total control of any portion of the picture screen. When you call up this option, a section of the screen approximately one-inch square is displayed across the entire screen. Each pixel is shown as a rectangle approximately ¼-inch high by ⅛-inch wide. With either the joystick or the cursor controls on the keypad, you can step through the screen. Each pixel can be changed to any of the eight default colors or, by stepping through the picture section with the "current" color as your choice, the current palette color will be written into the picture section. This option lets you have complete control over the total picture pixel by pixel.

The Line and Box commands are variations of the Free Hand and Step Draw commands. In the Box command menu, The Polygon command is used when you want to draw anything from a triangle to a circle. Then, after you have the figure on the screen in the shape and location where you want it to be drawn, pressing the second button on the joystick locks it in place and pressing it a second time starts the procedure over for a second figure to be drawn.

The Ray and C-Line commands both use the PF1 and PF2 keys with the same options as in Free Hand and Step Draw: draw a line using pixels or draw a line using the current brush. With the Ray command, pressing the second joystick button locks a point on the screen and moving the joystick control sends rays out from that point. Each time the second button is pressed after the first time, a ray line is locked into place from the center point. The C-Line command is much the same. It draws a continuous line from a point locked on the screen the first time the second joystick button is pressed. Neither of these commands will draw arcs — only a straight line from the established position.

The Text command allows you to insert written text into your picture at any location desired. This is an option that most Sanyo owners take for granted, but most computers in the 550/555's price range will not allow text and graphics on the same screen. With the text command, you have a choice of text color and background color and they can be different than the canvas color where they are being written.

The Switch command gives you color control of the picture in that you can change any on the canvas to any other color by the push of a button. This gives you an easy way to try colors in sections of the picture until you get the one that

looks best. The Erase command does just what it says — gives you a clean canvas. You may specify the color for the blank canvas by inputting zero through seven or eight to paint the bare canvas with the current palette color. The Other Area command lets you have two canvases in process at one time. This is useful if you have different designs working that you are using more than once and need a place to store them while working on your main canvas.

The last command is the Stamp. This command is the most difficult to understand and gave me the most trouble. It takes some practice to use and you must be very careful or you can completely lose a picture that has taken hours or weeks to get to its current stage. The command has the following menu options: Get, Put, Mirror L/R, Mirror U/D, Load from Disk, Save to Disk, Stamp Directory, Delete and Print. Stamp Directory is just what it says and gives you an input choice of drives A through D. Mirror L/R and U/D do just what they say — make the left side the right side and reverse the text characters or turn the picture top for bottom. These commands can be used together to reverse the picture and flip it side for side. To use the Print command, you must have MichTron's *Freeze Frame* screen dump program installed ($39.95). The Save and Load commands are straightforward and Delete will erase a stamp from the disk. Put places the picture or a portion of the picture on the screen much the same as the Get command. Using the Get, Put, Save and Load commands is sightly confusing at first, but with practice the procedure becomes easier and you don't have to spend much time thinking it through. It may seem awkward at first, but the procedure makes the program very powerful in that any portion of any picture may be called and placed anywhere on the screen in any picture currently on the canvas.

That completes most of the commands and, very lightly, the various options that can be invoked by the program. To realize the full potential, you simply have to use the program. Words are insufficient to fully describe the drawing power of *Picasso*. This is the very best graphics program I have ever used and is head and shoulders above all the others. Most of them are excellent BASIC graphics programs, but are limited when compared to *Picasso*. If you want a computer graphics program that gives you the power to create pictures much the same as a canvas and oils would, then this is the one for you.

(MichTron, 576 S. Telegraph Rd., Pontiac, MI 48053, 313-334-5700, $99.95)

— Fred Clabuesch

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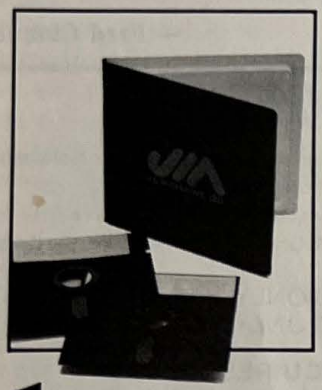

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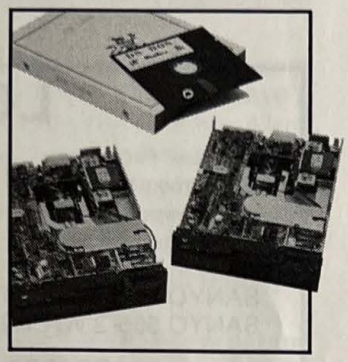

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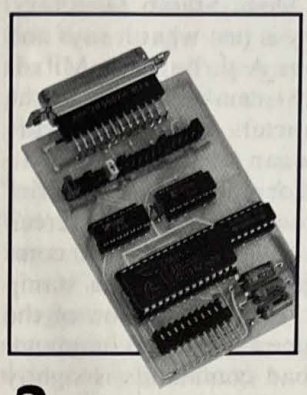

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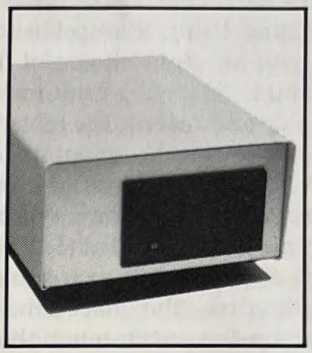

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SS 10/84

Redefine Function Keys Easily With *PFKEY*

Function keys are very useful for saving keystrokes, particularly if you do a lot of programming and you are, like me, a hunt-and-peck typist. Sanyo's MBC-550 series of computers with Sanyo BASIC sets the 10 PF keys with standard BASIC command words. As you know, there are many command words in Sanyo BASIC that are not included under the PF keys . . . until now!

Let me introduce *PFKEY*. *PFKEY* is a menu-driven, easy to use BASIC program that allows you to change Sanyo's standard BASIC command words under the PF keys. Also, *PFKEY* lets you set up 10 additional function keys under the CONTROL and number keys at the top of the keyboard. The nicest feature of *PFKEY* is that the function keys are permanently changed in the *BASIC.EXE* program so you won't have to retype your selected functions each time you use BASIC.

To operate *PFKEY*, just run *PFKEY.BAS*. The program will read in the default set of BASIC command words (*CLS, INPUT, LIST, PRINT,* etc.) and then display them on the screen. You can now change any of the PF keys and CONTROL and number keys to BASIC command words or any word (limited to eight characters) that you choose. This procedure is very easy and has good procedural controls so you cannot make a mistake. There is an option to change the function keys back to the normal Sanyo settings if you so desire. When you are done making changes just hit the RETURN key and presto . . . all your new words are written in *BASIC.EXE* on the disk for future use.

Some other nifty points to highlight about *PFKEY* is that it will run under MS-DOS version 1.25 or 2.11. Also, it is completely menu-driven and, as far as I can tell, is "bug" free. The only problem I had was trying to remember which words I put with which function keys! It would be nice if an overlay template for the keyboard was supplied. Also, after using *KEYWORD* (another BASIC program written by the same company), it would be nice to combine both programs into one so the total keyboard could be used as function keys.

(Michigan Software Distributors, Inc., 43345 Grand River Avenue, Novi, MI 48050, 313-348-4477, $9.95)

— John Kandra

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Inchworm — A Game That's Both Educational And Entertaining

What's a computer game? It can be a way to simply pass time; it can be educational; it can challenge one's dexterity and be totally entertaining. Or it can sometimes be totally frustrating. *Inchworm* is one that proves to be educational (for the younger set) *and* provides an increasingly difficult challenge for *all* age groups. It is thoroughly entertaining, puts your senses at their keenest and is definitely not to be played just prior to turning in for the night!

Inchworm, written in BASIC, comes on a single-sided "self-booting" disk with DOS and BASIC and is saved with the '*P*' option. The purpose of this escapes me, since all one has to do to make a backup is do a simple file copy in DOS. The '*P*' save option prevents one from listing or saving the program while in BASIC. This may deter others from using some of the programming techniques of the program, but it does nothing to deter making of (legal or illegal) copies. In my opinion, the best deterrent to software piracy is reasonable pricing of the software. At $29.95 for *Inchworm*, anyone impressed by a demo of it (or this review) shouldn't feel bad about that price. *Inchworm* can be used on either a color or monochrome monitor.

As for warranty, the disk (but *not* the program) is warranted for 90 days *if* you don't scratch it, *if* you don't let your disk-chewing dog get to it, and *if* you don't modify it! If you can somehow damage it in some way other than mentioned above and the damage is "invisible," they will take care of you. Since it's easy to make a back-up copy, one can fortunately be covered in time of disaster.

What's the game all about? Well, if you need practice with your addition, subtraction, or in learning the order of the alphabet, *Inchworm* will be of value. The math is limited to single digits (i.e., 6+3). The game screen consists of a rectan-

Correction

Several readers have called or written reporting apparent bugs in Lines 190, 210 and 270 of my *Font* program (Sept. '84 SOFT SECTOR) which would cause a negative color specification to be used in the *LINE* commands in those program lines. I have traced these problems to a previously unknown flaw in Version 1.1 of Sanyo BASIC. It seems that taking the *SGN* of a logical *AND* of certain pairs of positive numbers yields a negative result. This bug has been corrected in BASIC 1.25 (with which I wrote *Font*). To see this bug in action, type the following from the BASIC 1.1 prompt:

```
PRINT 128 AND 128          [prints "128," a positive number]
PRINT SGN(128 AND 128)     [prints "-1" (?)]
```

This is, obviously, a problem I had not anticipated. If you plan to use *Font* with BASIC 1.1, change the *C* color specification in the *LINE* commands in Lines 190 and 270 to *ABS(C)* and change the color spec in Line 210 from *2-C* to *2-ABS(C)*.

J. Weaver Jr.

French Curves — Good Graphics In Any Language

French Curves is a graphics program with application both in business and at home. It is user-friendly and requires only the basic Sanyo MBC-550 configuration for full implementation. This BASIC program maximizes the Sanyo graphics capability to include the powerful *SYMBOL* command. To round out its capabilities, the program disk includes screen dump utilities for properly equipped Epson, Okidata, and Gemini-10X printers.

The program contains two easily interchangeable menus composed of the following commands:

Drawing Menu	Handling Menu
Circle	Save
Line	Load
Paint	Magnify
Box	View
Back-up	Files
Grid	Coordinates?
Text?	
Redisplay	Redisplay
Start over	Start over
Clear Screen	Clear Screen
Cursor Color	Cursor Color

From these you can begin to see the versatility that *French Curves* provides.

To use *French Curves*, boot the program disk and, at the "A>" prompt, type *BASIC "FC"*. Press the RETURN key at the Intro Screen and you will be prompted to enter the number of drives and kilobytes of RAM you have. Having completed these entries the drawing menu will appear and you're ready to begin.

The cursor in *French Curves* is composed of two screen-wide, right angle lines like the cross hairs of a rifle scope. This provides accurate placement of screen dot points. Cursor movement results from pressing the arrow keys on the keypad. There are two speeds of cursor movement: One screen dot (pixel) at a time or one column/row (8 pixels) at a time. Speeds are changed by pressing the TAB key. At the beginning of each drawing step, the speed is reset to the single-dot mode. I had little trouble getting comfortable with this aspect of the program.

All drawing commands are utilized in much the same manner. As an example, to draw a circle, oval or arc, enter a 'I' at the drawing menu followed by RETURN. The screen will clear and the following prompts are displayed sequentially at the top of the screen:

1) Seven colored blocks appear and you are prompted to "Select a Color." Enter the number corresponding to the chosen color and press RETURN.
2) The screen clears and the cursor appears with the prompt "Locate Center Point." Use the arrow keys to move the cursor to the point of your choice, and press RETURN. The pixel at this point will be turned on.
3) You will now be prompted to "Locate Radius Point On Horizontal Axis." Relocate the cursor on this axis and press RETURN to establish the radius point.
4) "Locate Ratio Point On Vertical Axis" is the next prompt. If you are drawing a circle just press RETURN. To draw an oval, locate the cursor at the appropriate point on the vertical axis and RETURN.
5) The next two prompts are "Enter Arc Starting Point: (0Deg/360 Deg)" and "Enter Arc Ending Point: (0Deg/360 Deg)." Use the numeric keyboard keys to enter your options followed by RETURN.
6) The figure you have created will rapidly appear along with the initial circle mode prompt. To return to the drawing menu, press the HOME key ('7' on the numeric keypad) and RETURN.

Initially this would seem like a lot of trouble just to draw a circle. However, once accustomed to the sequence of prompts, it goes quickly.

French Curves, like many programs, utilizes command words which do not depict the ultimate function to be performed. Examples of this are VIEW, which reduces a full-screen graphics and relocates this new image anywhere on the screen, and MAGNIFY, which provides for cutting out a portion of the screen image for closer inspection.

Documentation is less than desirable for a relative novice such as myself, but this is not a major flaw. In summary, *French Curves* is a versatile program with which even I can produce high quality graphics, charts, blueprints or other graphics as desired.

(Computer Engineers, Inc., 1000 Pike Road, Birmingham, AL 35218, 205-781-0711, $75.00)

— Bob MacDonald

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INPUT/ OUTPUT

By Tim Purves
Soft Sector Contributing Editor

Q. *After upgrading my Sanyo to 256K, the* CHKDSK *program only shows 244,640 bytes. This value is far short of the 256K bytes required by the* GET *and* PUT *commands in* BASIC. *Have I installed some bad memory chips?*
A. The reason the *CHKDSK* program only shows 244,640 bytes is that the green screen is taking up 16K bytes. That is not available to the system. As far as the *GET* and *PUT* commands go, you don't need 256K bytes to use them as is stated in the manual. The *GET* and *PUT* commands will work in a 192K machine. In my machine, with 512K, I can *GET* and *PUT* the entire screen — something you can't do with a 256K machine.

Q. *Can I play music on the Sanyo 550?*
A. Yes you can. After extensive research on the 8241A chip that controls the sound in the Sanyo, I have developed a way of generating "bit sound." The details are much too complex to be properly addressed here; I plan to write an article for a future issue of SOFT SECTOR.

Q. *Is it possible to connect my Sanyo to a television set?*
A. Yes, all you will need is a "video modulator." A video modulator is an electronic device that converts the video signal from a computer to a radio frequency that is receivable by a standard TV set. Some of the more expensive TVs have a video input; in these cases all that is required is a cable. Also note that the video signal coming out of the Sanyo is monochrome only — there is no color signal. Hence, the only way to get color out of the Sanyo is to use the RGB output.

(Tim Purves is an expert on the Sanyo 550/555 series computers and is an experienced programmer in assembly code, PASCAL, C and BASIC. He is available to answer any questions that the readers of SOFT SECTOR might have. All questions should be addressed to SOFT SECTOR, P.O. Box 385, Prospect, Ky., 40059.)

Q. *I have a Sanyo PR-5500 printer and, under* Easywriter I, *the printer will print the text backwards. It only appears to act up when I use "dot commands." What is wrong?*
A. Some printers require the data to be sent backwards to perform bi-directional print. *Easywriter I* has a command in the installation program (*EWCONF.COM*) to turn this function on and off. Just go into the installation program and toggle this function to the reverse of what it is currently set to.

Q. *I just installed two double-sided drives in my Sanyo and I have two single-sided drives left over. What can I do with these drives?*
A. One of the things you might do is to get a case, power supply, and a four-drive cable and install them as drives C and D. Or you might take them to your nearest Sanyo club meeting and find someone who only has one drive.

Q. *What is the syntax of the HCOPY command in Sanyo* BASIC?
A. The command is supposed to be a text screen dump routine in BASIC. This is another un-implemented command in Sanyo BASIC; it just points to the syntax error routine. Maybe it will be implemented in an upcoming release of BASIC.

Q. *I have a Gemini-10X printer and I can't seem to make it print in 12 cpi, or compressed, from* CalcStar. *Do you have any suggestions?*
A. The simplest way is to command the printer into the mode desired before running *CalcStar* or any program. If you can program in machine language, you can make some *COM* files to accomplish this, or you can do it from BASIC. For example, to put the Epson or the Gemini in 12 cpi from BASIC, enter the following command:

```
LPRINT CHR$(15): ' Sets the printer in 12 cpi mode
```

Q. *Why does my printer work fine in* WordStar *and DOS, but locks up under* BASIC? *I am using MS-DOS 2.11.*
A. I have seen this before; it stems from the fact that you are using MS-DOS 2.11 and a MS-DOS 1.25 BASIC. The *LPRINT* code in MS-DOS 1.25 BASIC will not work on MS-DOS 2.11. Just make sure that you are using the BASIC that came with your original DOS disk.

Q. *Are there any modem systems up that have Sanyo information?*
A. An excellent source is on CompuServe in the IBM SIG (PCS-131).

Q. *While running* Easywriter I, *I created several small files and the program would not place more than 64 files on the disk, yet I still had over 40K free on the disk. Why?*
A. The reason is that a single-sided disk can only have 64 files and a double-sided disk can have only 112 files. To allow more files on a disk is part of the reason that MS-DOS 2.xx was created. Under MS-DOS 2.xx you can have tree-structured directories that will allow you to place all common files in one separate directory. With this method you can have as many files as allocation units, which is better than 700 files on a double-sided, nine-sector disk.

DS DOS PLUS by Tim Purves

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MI-TERM by J. Weaver Jr.

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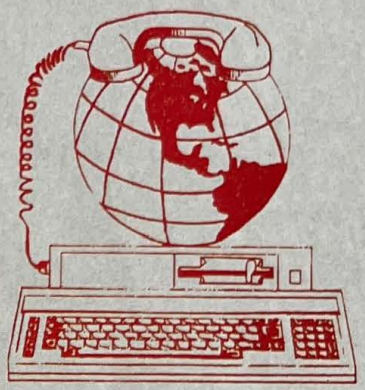

M-DISK by Dale Schlott

Give your system the extra power you need! Great things come in small packages; M-DISK contains one ultra-miniature, super-fast, diamond-tough PHANTOM DISK DRIVE with built in disk! And not only is the aforementioned product miraculously disguised as a floppy disk, but it's a great value since other disk drives cost over $300! M-DISKS's talents stem from one fact: it is not a mechanical device! It's a software program that takes part of RAM and sets up a software duplicate of a hardware drive. It then makes DOS treat this "phantom drive" as the real thing. The result is the equivalent of an EXTRA DISK DRIVE that behaves normally except for incredible speed and infinite durability! And it has no moving parts, so programs using constant disk accessing (such as word processors) run as fast as continuous flies! Time is money. M-DISK can save you alot of BOTH!

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FREEZE FRAME by Ken Olson & Bill Dunlevy

FREEZE FRAME is an incredibly versatile and accessible screen dump program. It works with most of the major graphics printers, and any other printer that can emulate one. FREEZE FRAME prints graphics and text from the screen, or straight from the disk file! And not only that, but you aren't stuck with printing the entire screen; You can define ANY portion you want! Another unique feature is that you can choose the printed hue of all the screen colors! FREEZE FRAME can be accessed from DOS, machine-language, or BASIC (with simple GET and CALL commands). You can even use a Quadram or Cannon Ink Jet printer for FULL COLOR pictures! With FREEZE FRAME, you can REALLY get the picture... and KEEP it!

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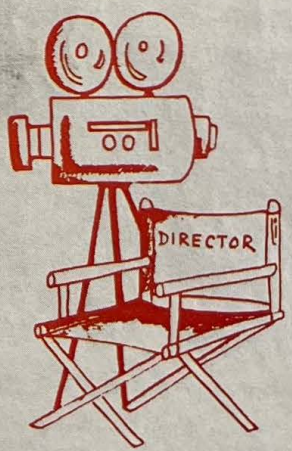

MI-KEY by Dean Brown

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After you've acquired all the components necessary for getting online, let's take a look at one of the major consumer information networks:

The Joys Of CompuServing

(J. Weaver Jr. is a free-lance computer programmer and author whose previous efforts include over a dozen published programs for the TRS-80 Models I/III and Color Computer and the Sanyo 550/555. His recent works include MI-TERM, SOLITAIRE and *MAZ. He is also the National Recording Secretary of CHART [Computer Hobbyists Against Raiders and Thieves]. He can be reached through CompuServe [71446,1362], MCI Mail [FACTPROG] or at WH Enterprises, 859 Winston, Monroe, MI 48161; phone 313-241-WHWH.)*

The CompuServe Information Service is a multi-user network of online services for both business and home computer users. With nearly 100,000 subscribers, CompuServe is one of the three largest information networks in the country (along with Dow Jones News/Retrieval and The Source). While its size and complexity almost defy complete description, I'll try to give you a fairly complete overview of the types of information and services available. CompuServe actually consists of two different systems: the Consumer Information Service (CIS) and the Executive Information Service (EIS). Since the Executive Service is designed primarily for business use, we'll concentrate here on the Consumer Service.

Getting started on CIS is easy enough. First, of course, you need a 300 or 1200 Baud modem, an RS-232 interface for your computer, and a communications or terminal program to shuffle the data between modem, disks, keyboard and screen. CIS starter packages, which include a CompuServe user ID number, a temporary password, and from one to five hours of free connect time, are available from many computer stores and dealers. To register, you just use the temporary password to logon to the system, enter your name, address, and billing options at the system prompts, and mail in the registration form in the starter package. After three or four days, CompuServe will mail you a second password to be used after your free connect time expires. You can change your password at any time, and CompuServe suggests that you change it on a regular basis for maximum security. Logging onto CIS is easy enough, too — you just call the nearest network access number, and enter your user ID and password.

Before we go any farther, we'd better talk money. For 300 Baud access, CompuServe's "Standard" connect rate (6 p.m. to 5 a.m. weekdays, all day Saturday and Sunday and announced CIS holidays) is $6 per connect hour, billed in one-minute increments with a one-minute minimum per connection. Connect time during "Prime Service" hours (8 a.m. to 6 p.m. weekdays) will run you $12.50 an hour. The hours from 5 a.m. to 8 a.m. are occasionally used for system maintenance and service then is on an "as available" basis at Standard connect rates. In addition, there are network access fees ranging from 25 cents an hour for CompuServe's own network numbers to $10 an hour for prime time TYMNET or TELENET service. There are also extra charges for running certain CompuServe programs, such as *MicroQuote* (a database of current and historic stock prices), and for special services like 1200 Baud access, manuals, and extra online storage. CompuServe will not bill you directly; your CIS account must be paid through your MasterCard or Visa, or by Electronic Funds Transfer direct from your checking account through CompuServe's CHECKFREE payment plan. Also, don't forget the long distance charges; although there are currently over 1,000 phone numbers each for 300 and 1200 Baud through which CIS can be accessed (with over one hundred additional numbers scheduled to be added in August and September), if you live in a small town, odds are that the closest network node will not be a local call.

The majority of CompuServe's services and reference areas are set up as a series of menus, which is ideal for the new user. Most of the menus are sized to fit on a 16-line, 32-character screen, making them usable under almost all terminal configurations. There are voluminous "help" files in the system at almost every command prompt. For the more experienced user, most "pages" in CIS have a distinctive page number, and can be reached directly from any of CompuServe's ubiquitous '!' prompts with the 'G' command. For example, returning to the top menu is as simple as typing "GO CIS-1." Once you establish a pattern of CompuServe usage, these

By J. Weaver Jr.

direct jumps can save you hours of connect time.

As a CIS subscriber, you have an almost overwhelming array of goods and services to choose from. There are five major sections on the top menu. Under "Home Services," you can find news, a reference library, home shopping and management, education, travel and entertainment. The "Business & Financial" section offers news and reference materials from a different angle, as well as stock quotes and brokerage services. Under "Personal Computing" are the bulk of the Special Interest Groups (SIGs), and the personal file area, where you can store your files on

Continued on page 52

10 Tips On Conserving Your Connect Time

With a minimum charge of $6.25 per hour, CompuServe can be an expensive proposition unless you learn to use your connect time to full advantage. Towards that end, here are some time-saving tips:

• **PUT YOUR PRINTER ONLINE** for the length of your first few sessions on CIS. Later, you can review the printout and learn from your mistakes. If you don't have a printer, borrow one for a week. Once on, hit 'H' from the top menu and learn to use the general commands explained there. The CONTROL-C can break out of almost any sticky situation and the CONTROL-P is especially handy — it will take you to the next command prompt from almost anywhere in CIS, even from the middle of SIG messages.

• **USE THE 'G' COMMAND** to go directly to pages of interest instead of wading through the menus. When you sign up, CompuServe sends you a list of most of the major CIS areas, and the time spent downloading a new index once in a while will be more than repaid.

• **SET THE USER-DEFINABLE KEYS** on your communications program to your user ID, your password, your name (for SIG membership prompts and EMail), and your most common CompuServe commands.

• **CONFIGURE THE SYSTEM** to your requirements. The "DEFALT" section of CIS ("G DEFALT") allows you to set your terminal parameters to get the most out of your computer. You can also create a "Personal Menu" of the CIS pages that interest you, to be given to you when you first logon. There's even a handy little option you can set with DEFALT to take you directly to EMA-1 if you have EMail waiting (which is what most users do anyway).

• **SET UP A BUDGET** and keep track of your connect time. At the very least, "G MONTH" regularly for a list of your current CIS charges. The best method is to keep an offline log of calls, with date, time and duration, which can also come

Continued on page 53

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Cave Gremlin - There are gremlins in the cave that you are exploring!!! Kill them and you'll survive other wise they'll get you. Gives warnings as to what dangers lie ahead. Two major obstacles: pits and gremlins. **$24.95**

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Space Pilot - A lunar landing game where the players mission is to land a space ship safely at its destination. Be careful, if the decent is too fast, you'll crash!!! **$24.95**

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Continued from page 51

CompuServe's disk space. "Services for Professionals" offers subjects of interest to specific professional areas, such as aviation, engineering and real estate. The "Electronic Mall," one of CompuServe's newest features, has over 60 participating merchants and dealers, including several hardware and software manufacturers. You can browse through the Mall, read product descriptions, ask questions, and even order merchandise and services with a credit card.

Besides being a vast storehouse of online information, CompuServe also shines in the area of user-to-user communications. With the electronic mail service, called "EMail," you can send messages to any other CompuServe subscriber, using their ID number as the address. When logging on to CIS, you are informed if there is any EMail waiting for you and there is an option to have the system take you to the EMail section directly for retrieval of waiting messages.

Then there's the budget-buster: the "CB Simulation." CB is set up much like its radio predecessor —there are two bands to choose from, each containing 40 channels. When you sign on, you enter a "handle," by which other CB users can identify you. From that point on, every line you enter will be flashed instantly to the screens of all other CBers on that channel, preceded by the channel number and your handle, such as, "(19,JWJr) Hello, all." Other users' questions and responses are echoed to your screen in the same fashion (which can get pretty hard to follow sometimes, when 20 or 30 people congregate on the same channel). CB also allows you to talk privately with other users, monitor other channels, list the user IDs of other CBers, and even "SQUelch" (mask out) another CBer who gets on your nerves.

Topics of CB conversation range from the sublime to the ridiculous; on any given night, you can find other CBers comparing computers, politicians, philosophies of life or even sexual preferences (on the "adult" channel). A word of warning: this CIS section has probably been responsible for more users exceeding their credit limit than any other — it's very easy to get addicted to the byplay and then logoff to see "Connect time: 4:13." Ouch!

The CompuServe SIGs offer a somewhat more orderly forum for user communication. There are over 60 SIGs listed on various CIS menus, including occupational SIGs, hobby SIGs, political SIGs, computer SIGs, even a CB SIG; in short, a SIG for almost every conceivable topic or interest. Most of the SIGs are open to all CIS subscribers at no additional charge, although some are restricted to certain types of users or registered owners of certain products. Each SIG contains a message base which you can read, skim through or leave messages on to other SIG members. The SIG software's implementation of message "threads," or series of related messages and their replies connected together, allows you to follow or join into a lengthy conversation easily.

Besides the message base, most SIGs contain a multi-section database, where you can find many program and data files, or submit your own programs or data files for the benefit of others. In addition, each SIG has a scaled-down version of CB called the "COnference" area, where SIG members can get together to exchange ideas and information. Many of the SIGs have regularly scheduled CO meetings, ranging from general bull sessions to seminars and question-and-answer forums with leading figures in the SIG's specialty.

Of particular interest to Sanyo owners is the IBM PC SIG, which can be reached through the "Personal Computing" menus, or by typing "G PCS-131." The PC SIG, with hundreds of active members, is one of the busier SIGs on CompuServe, with the messages on the message base turning over almost daily at times. Section 9, the "IBM Compatibles" section, features mostly Sanyo users, and the matching XA9 database has over 50 files submitted by SIG members related to the Sanyo, including user hints and patches, public-domain games and utilities, and lists of PC programs that either will or won't run on the 550/555, as well as reviews of commercial offerings (including one of this magazine). Several authors and distributors of Sanyo products also offer customer support on Section 9, along with the general support that SIG members and the SIG SYSOPs (SYStem OPerators) provide for new SIG and computer users. In addition, there is currently a letter-writing campaign under way to FEEDBACK (CompuServe's online complaint department) in support of a separate Sanyo SIG.

Although CompuServe is many things, it is not perfect. The software is constantly being updated to add new features and sections, which also creates a certain number of bugs in the system. Although system error trapping is excellent overall, you can occasionally find yourself in an endless loop after a misspelled command, requiring you to break your phone connection to escape. Should this happen, you should log back on immediately, as another slight flaw in the code may add up to 10 additional minutes to your connect time if you logoff incorrectly.

Getting the help you may need from CompuServe's customer service department is often a frustrating experience for old and new users alike; the toll-free service line is almost always jammed, with 20- to 30-minute waits on hold (with recordings and canned music) being common, even at odd hours. The FEEDBACK section online (with free connect time) is a nice addition; responses are accurate and disputes are handled in a very fair manner.

The bane of most CompuServe subscribers is the all-too-common "NTWCPR" (for Network Communications Problem) error, which blows you all the way back to the "User ID" prompt. Many of CompuServe's local telephone nodes have developed a bad reputation for sudden disconnections, which can be disconcerting in the middle of a conversation on CB or CO. Another source of irritation is the four-line "mini-ads" for Electronic Mall merchants that have appeared on many of the CIS menu pages recently. Many users also bemoan the lack of programming languages, which were removed from the system several months ago, apparently due to a concern about network security.

On the whole, CompuServe is well worth its comparatively minimal costs, both as an online reference facility and as a forum for the exchange of programs and ideas between like-minded users. As several companies have recently demonstrated, CIS has great potential as a medium for customer service and software support, as well as the power to bring people with common interests together in far greater numbers than even the largest of local users' groups. Even experienced computer hackers can learn from CompuServe, and the novice computerist will find a wealth of general and machine-specific information for the asking.

Continued from page 51

in handy for double-checking your phone bills, if you call long distance.

• **WATCH THOSE EXTRA CHARGES!** When you first logon, CompuServe will display the date and time. If the time is followed by the letter 'P', you've logged on during prime connect time. Be especially careful about logging on during the day on holidays — not all legal holidays are CIS holidays. Watch for the '$' character preceding a menu item — it means that there is an extra charge for that service. Also, beware of the "print file" and "save to disk" commands, such as after you read incoming EMail. Select the "print" option, and CompuServe will mail you a beautifully line-printed copy of your friend's welcoming message — for a minimum $4 charge. As for saving files online, you're only allotted 128K of disk space, with each additional 64K costing $4 per week.

• **DO AS MUCH AS POSSIBLE OFFLINE.** If you know you're going to be leaving a SIG message or EMail to someone, compose it with a word processor offline and then upload it to CIS using the XON/XOFF protocol. The SIG message editor will display garbage as you do this, but fear not — your message is getting there intact, and much faster than with the "prompt" or "line delay" mode. *Never* type in a long reply to a SIG message or EMail online; write down the message number or the sender's user ID, exit the system, write your reply, and then log back on to leave it. If you leave a lot of messages and your terminal package doesn't support ASCII file transfers, buy one that does — you'll save in the long run.

• **USE THE "RT" AND "RN" COMMANDS** when reading SIG messages. "RT" allows you to read entire message threads together so you won't have to go back and reread messages to keep the conversation fresh in your mind. "RN" reads only messages left since the last time you were on that particular SIG. Better still, try "RTN." If you don't want to read *all* the SIG messages, use the "SM" function to scan the message headers and mark the interesting ones; then, read them with "RM." If all you do is print out or save SIG messages to disk for reading later, use the SIG "Change user options" command to turn on the "brief" mode, which prints the messages continuously with no prompts in between. If you do this regularly, invest in a 1200 Baud modem — standard 1200 time gives you four times the information for only double the price.

• **DON'T MAKE YOUR PASSWORD OBVIOUS.** As CompuServe suggests, use two or more unrelated or meaningless words (for example, my temporary password was "NAVAL TESTIFY"). Don't use your middle name, your dog's name, your occupation, your astrological sign, your favorite sport, or any other specific piece of information that a stranger could discover about you.

• **NEVER, NEVER, NEVER TELL ANYONE YOUR COMPUSERVE PASSWORD** — they don't need it to send you EMail or SIG messages or for any other purpose except to defraud you. In particular, *never* enter your password on CB or CO; unscrupulous users have been known to fake a system error message or to pass themselves off as CompuServe employees in order to get someone's password. *You* are responsible for all charges made to your account, so if you suspect that someone else knows even a portion of your password, change it at once. If you demonstrate the wonders of CompuServe for a users' group or club meeting, change your password as soon as possible afterwards. And when you get a system error (like " NTWCPR") that appears to have blown you back to the logon sequence, play it safe: hang up and call back again.

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GOLDMINE

Clayborne D. Taylor, Jr.

One day I sat down in front of my new Sanyo MBC-550 computer and wondered if I would ever be able to play any real games. After trying a few IBM games that did not work (including *Flight Simulator* for IBM), I decided that these would eventually be adapted to work on my computer by the companies that make them. While I was waiting, though, I still had nothing to play.

Since I have only the few programs supplied with the Sanyo 550, I primarily use the powerful *WordStar* to write papers and letters for my parents. Having one of the best RGB monitors on the market today (a Princeton X-12), I needed some games to show it off. So then the SOFT SECTOR magazine came in the mail with a section in the back that said they would accept programs. I wasted no time in creating a good game that would not take long to type into the computer. Consequently, here is an action game that may be added to your list of software.

When *GOLDMINE* starts, a grid is drawn and labeled with colors blinking on and off in different blocks. After the prompt comes up, enter the coordinates for the sector that you believe is the bonus block. The color of the block you select will be the color of the rocks (throughout the game). The coordinates of the bonus block will light up in red. If you selected the correct block, a bonus of 5,000 points is received. Then the instruction screen comes up and the game begins.

The object of the game is to avoid the rocks and get the gold. A "jumping" effect can be achieved by moving back, and then when an obstacle is in front of the man, move forward a space to "jump" over it. The obstacle is missed, and the man is not killed. This is the directional layout using the arrow keys on the numeric keypad:

back
↑
left ← → right
↓
forward

The picture of the rock can be easily changed. The data starting at Line 1000 is a matrix of 16 x 8 numbers. This is the size of the rock (16 x 8 pixels). '1' means pixel on and '0' means pixel off. That's simple enough, isn't it?

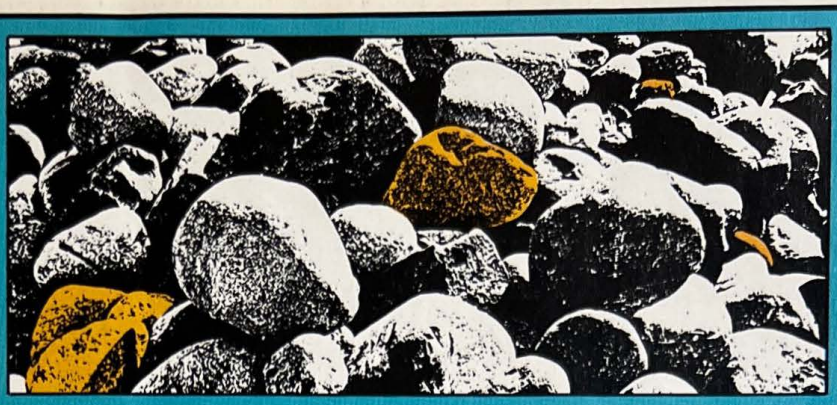
There are certain sections of the screen that the rocks never fall on. If you want to leave the game for a minute, just find one of those sections. I call them "rock hallways," and there can also be gold in these areas. Watch out for the gold pieces that are located on rocks, because they will kill you and you will get no score for the gold.

If you are wondering how the program knows where the rocks and the gold pieces are, there are two arrays that I use — *S$* for the rocks and *SS$* for gold pieces. These arrays are dimensioned at 25 (25 lines on the screen) and they are 80 spaces long. A rock is represented by a block and gold is represented by an 'o'. They are placed in the variable at 25 when the characters are placed on the screen. When the screen is scrolled, the variables are scrolled. Instead of reading off the screen, the program reads from the scrolled variables.

When typing in the program, leave out the remarks (') if you wish. I'm sure you will get something out of this program: if not the action, then perhaps the programming techniques.

(Clayborne Taylor, Jr. is a high school senior in Starkville, Miss. He has won an award for being the most outstanding student in computer science and he finished in the top ten percentile in a statewide mathematics competition for high school students.)

```
10 REM Gold Mine by Clayborne D. Taylor, Jr.
20 LOCATE 1,1,0
30 DIM ROCK(1000), FA(500), S$(25), SS$(25)
40 SCREEN 2
50 COLOR 0,0:CLS
54 '
55 '** set up 9x9 grid **
56 '
60 FOR I=20 TO 200 STEP 20
70 LINE (I,10)-(I,190),7
80 NEXT I
90 FOR I=10 TO 190 STEP 20
100 LINE (20,I)-(200,I),7
110 NEXT I
```



```
114 '
115 '** label the grid **
116 '
120 COLOR 1:N=0
130 FOR I=23 TO 193 STEP 20
140 N=N+1:N$=STR$(N):H(N)=I
150 SYMBOL (I,0),N$,1,1,1
160 NEXT:N=0
170 FOR I=16 TO 176 STEP 20
180 N=N+1:N$=STR$(N):V(N)=I
190 SYMBOL (205,I),N$,1,1,1
200 NEXT
204 '
205 '** shuffle colors around the grid and ask for a square **
206 '
210 FOR I=1 TO 200
220 X=INT(RND(1)*9)+1:Y=INT(RND(1)*9)+1:J=INT(RND(1)*6)
230 PAINT (X*20+5,Y*20+5),J,7
240 G(X,Y)=J:NEXT
250 LOCATE 3,40,0:COLOR 3:PRINT "TRY AND FIND THE MAGIC SQUARE";
260 SYMBOL (260,100),"SECTION ? [X,Y]",3,2
270 R$=INKEY$:IF R$="" THEN 270
280 R=VAL(R$):IF R<1 OR R>9 THEN 270
290 IF CH=1 THEN RETURN
300 SYMBOL (H(R),0)," "+R$,1,1,3:X=R:REM ** highlight the X number
310 CH=1:GOSUB 270:CH=0:SYMBOL (205,V(R))," "+R$,1,1,3:Y=R:REM highlight Y
320 C=G(X,Y):FOR I=1 TO 700:NEXT
324 '
325 '** randomly select X and Y values, test for similarity, and show X and Y
326 '
330 XX=INT(RND(1)*9)+1:YY=INT(RND(1)*9)+1:XX$=STR$(XX):YY$=STR$(YY)
340 SYMBOL (H(XX),0),XX$,1,1,4:FOR I=1 TO 900:NEXT
350 SYMBOL (205,V(YY)),YY$,1,1,4:FOR I=1 TO 900:NEXT
360 IF XX=X AND YY=Y THEN 370 ELSE 400:' was magic square selected?
370 FOR I=1 TO 10:FOR J=0 TO 7
380 COLOR ,J:CLS:NEXT J,I
390 SCOR=5000:GOTO 410:' bonus 5000 if the magic square is selected
400 SCOR=0:' otherwise, the score starts out at 0
404 '
405 '** instruction screen **
406 '
410 COLOR 7,0:CLS:IF C=0 THEN C=INT(RND(1)*5)+1
420 LOCATE 5,20:PRINT CHR$(1);
430 FA$=CHR$(1):LOCATE 5,40:COLOR 6:PRINT "o";:COLOR 7
434 '
435 '** draw rock **
436 '
440 FOR Y=1 TO 8:FOR X=1 TO 16
450 READ RO:PSET (X+100,Y+150),C*RO
460 NEXT X,Y
464 '
465 ' put picture into the array <ROCK> and set up game variables
466 '
470 GET (100,150)-(116,158),ROCK:SYMBOL (130,165),"WATCH OUT FOR ROCKS!",1,1
480 LOCATE 4,15:PRINT "THE MAN MUST";
490 LOCATE 4,35:COLOR 6:PRINT "GET THIS GOLD!";:COLOR 7
500 FOR I=20 TO 38:LOCATE 5,I:PRINT " ";FA$;:FOR J=1 TO 10:NEXT J,I
510 MV=7:MH=40:MEN=5:MM$=" ":UP$=CHR$(30):DW$=CHR$(31):FOR I=1 TO 8000:NEXT
520 LT$=CHR$(28):RT$=CHR$(29)
```

```
524 '
525 ' clear screen storage variables
526 '
530 FOR V=2 TO 25:S$(V)=SPACE$(80):SS$(V)=S$(V):NEXT V
540 CLS:IF MEN=0 THEN 790:' test to see if game is over
545 '
550 '**  MAIN LOOP  **
555 '
560 R$=INKEY$:IF R$="" THEN 610
570 IF R$=UP$ THEN LOCATE MV-1,MH:PRINT MM$;:MV=MV-1:IF MV<3 THEN MV=3:GOTO 610
580 IF R$=LT$ THEN LOCATE MV-1,MH:PRINT MM$;:MH=MH-1:IF MH<1 THEN MH=1:GOTO 610
590 IF R$=DW$ THEN LOCATE MV-1,MH:PRINT MM$;:MV=MV+1:IF MV>7 THEN MV=7:GOTO 610
600 IF R$=RT$ THEN LOCATE MV-1,MH:PRINT MM$;:MH=MH+1:IF MH>80 THEN MH=80
610 LOCATE MV-1,MH:PRINT MM$;
620 LOCATE MV,MH:PRINT FA$;
630 LOCATE 1,20:PRINT "SCORE -";SCOR;
640 LOCATE 1,50:PRINT "MEN ";MEN;
650 IF MID$(S$(MV+1),MH,1)=CHR$(219) AND MID$(SS$(MV+1),MH,1)="o" THEN 820
660 IF MID$(S$(MV+1),MH,1)=CHR$(219) THEN BEEP:MEN=MEN-1:GOTO 820
670 IF MID$(SS$(MV+1),MH,1)="o" THEN SCOR=SCOR+500:IF SCOR>99999! THEN SCOR=0
680 FOR I=2 TO 24:SS$(I)=SS$(I+1):S$(I)=S$(I+1):NEXT
690 S$(25)="":SS$(25)="":FOR I=1 TO 8
700 R=INT(RND(1)*9):IF R=0 OR R=4 OR R=7 THEN S$(25)=S$(25)+SPACE$(10):GOTO 730
710 S$(25)=S$(25)+SPACE$(R)+CHR$(219)+CHR$(219)+SPACE$(8-R)
720 PUT (8*((I-1)*10+R),191),ROCK
730 NEXT
740 IF INT(RND(1)*10)=7 THEN 760
750 LOCATE 25,1:PRINT CHR$(10);:SS$(25)=SPACE$(80):GOTO 560
760 R=INT(RND(1)*79)+1:IF R=0 THEN 750
```

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```
770 SS$(25)=SPACE$(R)+"o"+SPACE$(78-R)
780 LOCATE 25,R+1:COLOR 6:PRINT "o";CHR$(10);:COLOR 7:GOTO 560
790 LOCATE 10,35,1:COLOR 6:PRINT "GAME OVER";
800 FOR I=1 TO 1000:NEXT:RUN
810 END
814 '
815 '** man gets killed **
816 '
820 CLS:LOCATE MV,MH,0:COLOR 4:PRINT CHR$(2);:FOR I=1 TO 500:NEXT
830 LOCATE MV,MH:PRINT CHR$(254);:FOR I=1 TO MV-1
840 IF MH-I<1 OR MH+I>80 THEN 900
850 LOCATE MV-I,MH-I:PRINT CHR$(201);:LOCATE MV-I,MH+I:PRINT CHR$(187);
860 LOCATE MV+I,MH-I:PRINT CHR$(200);:LOCATE MV+I,MH+I:PRINT CHR$(188);
870 LOCATE MV-I,MH-I:PRINT " ";:LOCATE MV-I,MH+I:PRINT " ";
880 LOCATE MV+I,MH-I:PRINT " ";:LOCATE MV+I,MH+I:PRINT " ";
890 NEXT I
900 COLOR 7:FOR I=1 TO 700:NEXT
910 GOTO 530
997 '
998 ' picture of the rock (1 means dot on, 0 means dot off)
999 '
1000 DATA 0,0,0,0,1,1,0,1,0,0,1,1,1,0,0,0
1010 DATA 0,0,0,1,1,1,1,0,1,1,1,0,1,1,0,0
1020 DATA 0,1,1,1,1,0,1,0,1,0,1,0,1,1,1,0
1030 DATA 1,0,1,1,1,1,0,1,1,0,0,1,0,1,1,0
1040 DATA 1,1,1,1,1,1,1,1,0,1,1,0,1,1,1,0
1050 DATA 1,1,1,0,0,1,0,1,1,0,1,1,1,1,0,0
1060 DATA 0,1,1,1,1,1,0,0,1,0,1,1,0,0,0,0
1070 DATA 0,0,0,1,1,1,1,1,1,1,1,0,0,0,0,0
```

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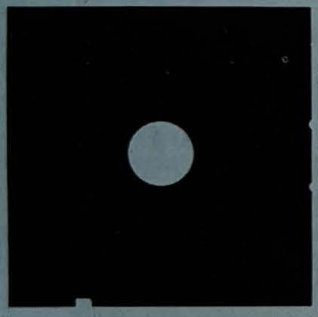
SOFT TALK



JOINING THE MASTERS. Entries are being sought for the Bronx Museum of the Arts exhibition of work by artists who use computers as expressive tools. Such works as computer graphics, computer animation, sound installations and audio art, among others, are eligible.

Videotape submissions must be on ¾-inch or VHS formats and slides must be 35 mm. The deadline for all entries is December 20, 1984, and you are requested to send duplicates only, accompanied by an SASE. The museum claims no responsibility for original works.

If you're interested in exhibiting one of your creations, send it to the Computer Graphics Exhibition, Bronx Museum of the Arts, 1040 Grand Concourse, Bronx, NY 10456; phone (212) 681-6000.

The following products are currently available for the Sanyo 550 series computers and will be reviewed in a future issue of Soft Sector.

LIVING A DISK'S LIFE. MicroComputer Accessories, Inc. has expanded its line of computer accessories to include the Executive Disk Tote. Made of cordovan leather, the carrying case holds and protects up to twelve disks in a lined pouch. It comes in a burgandy color with a Velcro clasp and matching leather wrist strap. It even has a *chic* little leather floppy sewn on the case. The suggested retail price is $49.95.

For more information on the Executive Disk Tote, contact MicroComputer Accessories, Inc. at 5721 Buckingham Parkway, P.O. Box 3725, Culver City, CA 90231; phone (213) 641-1800.

SOMETHING FOR NOTHING (or nothing for something, as the case may be). For $14.95, you can get a book entitled *How To Get Free Software*, by Alfred Glossbrenner. It claims to be the master guide to the public domain for every major brand of computer and operating system, offering tips on how to get free word processors, spreadsheets, database management and communications programs.

How To Get Free Software will supposedly "pay for itself many times over" and provide countless hours of fun. For more information, contact St. Martin's Press, Inc., c/o Ellen Schilling Acconcia, 175 Fifth Avenue, New York, NY 10010; phone (212) 674-5151 ext. 475.

Next, there will be free software telling how to get free books that tell how to get free software that tell how to get free books. . . .

PROGRAMMED PRESS has announced an investment-oriented statistical software package containing 50 programs for statistical forecasting, stocks, bonds, options, futures and foreign exchange. The package is accompanied by a 220 page handbook that lists and explains all 50 BASIC programs for planning and forecasting.

The software runs on the Sanyo 550 series computers, as well as all other machines using MS-DOS. The programs require 48K bytes of memory and only one disk drive.

The list price is $100 for the software and $19.95 for the handbook, which lists all 50 of the BASIC programs. Programmed Press is located at 2301 Baylis Avenue, Elmont, NY 11003; phone (516) 775-0933.

PLEASE, MR. POSTMAN... A mailing list program for United States and Canadian mail is now available for the Sanyo 550/555 from Maurizi Associates. *Mailer* offers users the features needed for file maintenance and use without requiring set-up. The database is already designed, as are the formats for printing labels (1, 2 or 3 across) or addressing envelopes. *Mailer* uses a fill-in-the-blank screen form and can be used with most word processing programs with mailmerging capabilities. It can read in existing files and has sort, scan, search, address file merging and record purging and selection capabilities.

Mailer is supplied with a tutorial and currently lists for $150. For more information, contact Maurizi Associates, 1344 Fitch Way, Sacramento, CA 95825; phone (916) 486-2993.

ANOTHER SANYO BBS is online and operating daily from 10:00 to 22:00 hours EST. C/Net, operating under the BBS-80 format, is free of charge; all that is required for full access is the name, address and telephone number of the user, which may be left in message form for the SYSOP. The data line is (517) 793-1579 and the voice line is (517) 793-7404.

MICHTRON ON THE MOVE. MichTron, the producers of several products for the Sanyo 550 series computers, are expanding their operation and moving into a large, new complex. With this move, not only do they expect to have a bit more elbow room, but they should also be better able to serve their customers.

MichTron's new address is 576 S. Telegraph Road, Pontiac, MI 48053; phone (313) 334-5700.

AMWAY DISTRIBUTORS can operate their entire business operation on the Sanyo 550/555 with the latest version of Fred Blechman's program package, *AMBIZ-PAK*™. Blechman, a well known author and programmer, has been involved with Amway for more than 20 years and his experience has gone into the production of this package.

The *AMBIZ-PAK* contains 15 menu-selected programs and data files, including Order Verify or Generate (with 400 product USA prices in data), Monthly

PV/BV Bonus Record, Distributor Organization, Monthly Gross Profit, Mailing Labels, Speed Letter, 12-Column Ledger, Simple Invoice, Telephone Directory/Timer and Telephone Toll-Charge.

The *AMBIZ-PAK* requires only one single-sided drive and is available for the TRS-80 Models I, II, III, 4, 12 and 16, the IBM PC, the Apple II, II+ and IIe, in addition to the Sanyo 550/555 computers. The program is available for $100, postpaid in the USA only. Also available is a $2 *Info-Pak*, refundable with an order. For more information, contact Fred at Blechman Enterprises, 7217 Bernadine Ave., Canoga Park, CA 91307, or call (818) 346-7024.

MORE MATHEMAGIC is being offered by Dr. Michael Ecker of Recreational Mathemagical Software. He is offering a sample disk of six complete demo programs, including a loan amortization program and the original game of *Super-Blackjack*. These can be obtained by sending a blank disk and only $4 to cover postage and handling. Furthermore, the $4 charge will be applied to the full *Magic Math* collection if you later decide to buy the entire package. If preferred, $7 can be sent in lieu of the blank disk.

Dr. Ecker unconditionally guarantees satisfaction with the *Magic Math* demo disk and promises shipment within 24 hours of receiving the order. If you're interested, write to Recreational Mathemagical Software, 129 Carol Drive, Clarks Summit, PA 18411.

THE SOFTIES are an organization doing research work with the Sanyo 550 series computers. They currently have several products on the market, including a manual entitled *Additional Commands for BASIC, Helpful Tips, and Examples for the Sanyo 550/555 Computer* (which is almost a chapter in and of itself). The manual covers file handling, graphics and more, and sells for $4.50 plus $.50 postage.

Also offered by The Softies is a technical newsletter entitled *Sanyo User's News (SUN)*, a program to unprotect programs protected with Sanyo BASIC, and a program to convert IBM BASIC to Sanyo BASIC.

For more information, write to The Softies, 7300 Gallagher Drive, Suite 229, Edina, MN 55435.

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LETTERS

Continued from page 25

Note the use of commas as delimiters for input.

I have used this method of writing to and reading from disk files on the Sanyo without a bug. Saving the program in ASCII on the Sanyo allows it to run without change on the IBM PC.

Bert Gustavson
Churchville, NY

Editor:

Congratulations on your new magazine. I have been a subscriber to THE RAINBOW for a year and I was pleased that you have decided to start this magazine. I know that in no time at all you will make this as large and successful as THE RAINBOW. I can hardly wait.

One suggestion I have is to do as many reviews as possible. The first thing I look at in your magazine is the reviews. With so many people having to buy things by mail order, seeing the review about a product is very reassuring.

Second, expand your question and answer column. It is great to see something I have been wondering about answered in these columns.

Keep up the good work.

Scott Farnham
Pinellas Park, FL

Editor's Note: In order to expand our question and answer column, we need lots and lots of questions. So don't just wonder about something until you see it answered in a column — write to us, get an answer, and help others who might have the same question.

Editor:

Thank God for your company printing SOFT SECTOR! I was ready to give up until today. I was getting ready to sell my Sanyo; now I won't have to.

Thank you very, very much.

Ed Trocki
Baltimore, MD

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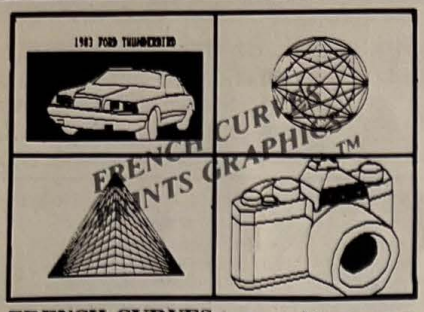

FRENCH CURVES is a graphics program to allow you to draw on the Sanyo. Anything the hand can draw, **FRENCH CURVES** can duplicate and more! You can enlarge or reduce your graphic creations. Save or load to disk, combine graphics and dump to most dot matrix printers. Create graphics with **FRENCH CURVES** and incorporate in your own programs. A partial list of commands in **FRENCH CURVES** are ... CIRCLE, LINE, PAINT, ENLARGE, MOVE, TEXT, LOAD, SAVE, FILES, PRINT, and BOX. *Engineers -Use French Curves as a mini-CAD (Comp. Aided Drafting system) ... Advertisers -Use French Curves for illustrating and promoting a product visually ... Game Writers - Use French Curves to create images for use in game programs ... Businesses - Use French Curves for bar charts, graphs and logos ... Most People -Use French Curves just for fun! French Curves* comes with a 30 page illustrated users manual. We are so sure that you will love French Curves that we offer a **NO RISK MONEY BACK GUARANTEE** - Purchase **FRENCH CURVES** and try it for 15 days. If your are not 100% satisfied, return it immediately for a **FULL REFUND!!!**

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Contributions to SOFT SECTOR are welcome from everyone. We like to run a variety of programs which will be useful/helpful/fun for other Sanyo owners.

FORMAT: Unless the program accompanying your submission is less than 10 lines, we must have the program itself on disk. We will print out the listing to our specifications. We simply cannot take the time to key in (and debug our typing errors) material which is longer than that. Editorial copy can also be included on disk, using any of the word processors currently available for the Sanyo 550/555. However, please also include a double-spaced hard copy of your editorial material and hard copy of your program listing. Please do not send text in all capitals. Use upper- and lowercase. While it is a big help to us in typesetting for you to send your article saved on disk using the ASCII option, it is not mandatory. But we must have, at the very least, a double-spaced hard copy of the article.

WHAT TO WRITE: Anything with a practical application. If it interests you, it will probably interest a lot of others. However, we vastly prefer articles with accompanying programs which can be entered and run. The more unique the idea, the more appeal. We can prepare finished tables, diagrams and schematics from your rough draft *if* you provide legible copy and full directions. We have a continuing need for short articles with short listings.

We do pay for submissions, based on a number of criteria. Those wishing remuneration should *so state* when making submissions.

For the benefit of those who wish more detailed information on making submissions, please send an SASE to: Submissions Editor, SOFT SECTOR, P.O. Box 385, Prospect, KY 40059. We will send you some more comprehensive guidelines.

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COMPUTERS W/SOFTWARE

550 (1 160K)	695.00
555 (2 160K)	940.00
550-2 (1 320K)	745.00
555-2 (2 320K)	1065.00
555-4 (2 640K)	1495.00

ACCESSORIES for 550

160K drive	125.00
160K drive w/soft	265.00
320K drive	185.00
320K drive w/soft	365.00
640K drive	225.00
640K drive w/soft	465.00
RS-232C 550	75.00
Memory 128K 550	110.00
Auto modem 550	145.00
Telephone Kit 550	345.00
Joystick 550	39.00
12" hi-res green	99.00
9" hi-res green	85.00
12" RGB color	395.00

MAXELL	DISKS	TDK
19.95	SS/DD	19.95
24.95	DS/DD	24.95

PRINTERS confg. for Sanyo

Panasonic	1090	295.00
	1091	355.00
Okidata	82A	299.00
	83A	535.00
	92P	409.00
	93P	645.00
	84P	770.00
Toshiba	1340	750.00
	1351	1250.00
Sanyo	PR-5000	451.00
	PR-5500	657.00
Silver Reed	400	340.00
	500	385.00
	550	480.00
	770	815.00
Abati	LQ-20	389.00
Juki	6100	419.00
Printer Cable		25.00

SOFTWARE * Send for List *

Ultimate (5 in 1)	159.00
CP/M-86 Oper. Sys.	90.95
Home Accounting	99.95
Accting System	350.00
Personal Pearl	234.50
Invest. Manager	169.95
Smartkey II	79.00
CP/M Emul. (550)	89.00
Radio Shack Emul.	59.97
Copylink	89.00
SanyCom	85.00
Flight Simulator	45.00
Solitare (game)	31.00
Cash Man (game)	31.00
Demon Seed (game)	31.00

SANYO SUPREME
2x800k DRIVES $1595
256k - RS-232
ULTIMATE (5 in 1) SOFTWARE

Add 3% for Visa/MC
Cashiers Check, Money Order, Wire Transfer accepted. No COD. Shipping/handling Additional charge.

SANYO CITY
1708 N.W. FEDERAL HIGHWAY
Stuart, Florida 33494
(305) 692-2455 **(305) 335-5489**

RACKSELLERS

The stores listed below carry SOFT SECTOR on a regular basis and may have other products of interest to Sanyo 550 series users. We hope you will patronize those in your area.

ALABAMA
Birmingham — Computer Engineers Inc.
The Computer Store
Fayette — Computer Shoppe
Flagstaff — Computer Time
Madison — Madison Books
Montgomery — Trade-N-Books

ARIZONA
Flagstaff — Datasystems
Mesa — Mesa Computer Mart
Phoenix — Apollo Computers
Tempe — Books, Etc.

CALIFORNIA
Hayward — 3E Software & Systems
La Jolla — Affordable Computers
Laguna Niguel — JCS Computers
Lancaster — Desert Computing
Los Angeles — Computer Phone Mart
Napa — Liberty Computers
Poway — Creative Computer Corp.
San Diego — Byte & Floppy Computers
Programs Unlimited
San Francisco — Aquarian Age Computer Center
San Luis Obispo — El Corral Bookstore
Paradise Computer Systems
Santa Rosa — Sawyer's News, Inc.
Sherman Oaks — Data Systems West
Stockton — Hardings Way News
Upland — Computer Haven
Friendly Computers
Vista — The Computer Place
Wallingford — Applied Computer Technology, Inc.
Walnut Creek — ECX Computer Co.

COLORADO
Aurora — Devi Computers

CONNECTICUT
Manchester — Computer Training Institute
Meriden — Total Computers
Stamford — Norman Block Associates
Wallingford — Comstat

DELAWARE
Wilmington — Nor-Mar — The Smoke Shop

FLORIDA
Altamonte Springs — Micro's Etc.
Boca Raton — Software, Software, Inc.
Ft. Lauderdale — Computer Exchange
Total Information Computers
Hialeah — Southern Microcomputer Co.
Jacksonville — AA Computer Exchange
Florida Computer Resources
Longwood — Adventure International
Electronic Specialty Products
Melbourne — City News Stand
D & B Office Equipment
Merritt Island — Compuworld
Micro's, Etc.
Miami — Computers, Computers, Computers
Computer Image
Niceville — MTS, Inc.
Orlando — Rainbow Computer Center
Ormond Beach — Micro's Etc.
Point Orange — Micro's Etc.
Sanibel Island — Sanibel Audio
Sarasota — 1 Computer Place
Family Computers
Seminole — Home Computer Discount, Etc.
St. Petersburg — Software Connection
Stuart — Computer Market Place
Tampa — Magnum I Computers
Personal Computer Center

GEORGIA
Augusta — Ram, Inc.
Atlanta — A & S Software
Guild News Agency
Decatur — Corr-Puters
Lithonia — Certified, Inc.

IDAHO
Boise — Western Computer & Office Supplies
Moscow — H & S Computer Supplies
Nampa — Canyon Computers & Communications
Pocatello — Computer Concepts, Inc.

ILLINOIS
Bloomington — J. Powell & Associates
Chicago — Central Business Machines
Highland Park — Home Office Systems/DOS
Rockford — Learn-A-Bit

INDIANA
Ft. Wayne — Bytrex
Indianapolis — A Computer Store
Kokomo — Toso Computer Shop
Marion — Computer Corner

KENTUCKY
Louisville — Software Source
Owensboro — Computer Stall
Prospect — Falsoft, Inc.

LOUISIANA
Gretna — The Computer Supply Store
Sulphur — Home Computer & Software
Thibodaux — Great Southern Computer Systems

MARYLAND
Baltimore — Personal Computer Learning Center
Bethesda — Technology Equipment Center
Camp Springs — Compudeo
Millersville — Comp-U-Type
Oakland — Englanders Pharmacy
Pasadena — RW Electronics Computer Center
Riverdale — Custom Computers
Savage — D & H Distributing Co.
Silver Springs — A-OK Computers
Towsend — Greetings & Readings

MASSACHUSETTS
Waltham — Computer Magic

MICHIGAN
Allen Park — Galaxy Computers
Berkley — Family Computers
Charlotte — Computer Options
Dearborn — Alpha-K Computer Co.
DSL
Farmington — ComputerTowne
Fenton — Computer Control Systems
Petry Products
Lapeer — Computer Corner
Mt. Clemens — Business Computer Systems
Novi — Michigan Software
Owosso — C/C Computer Systems
Pontiac — MichTron
Rochester — Rochester Book Center
Royal Oak — 1-2-3 Compute
New Logic Computers
Sterling Heights — The Family Room
Troy — Creative Center
Union Lake — Small Business Computers, Inc.
Wyandotte — ComputerTech
Wyoming — Gerry's Book Co.

MISSOURI
Aurora — Southland Electronics
Creve Coeur — C & M Associates
Republic — Franklin Computers
St. Louis — Softwaire Centre

NEBRASKA
Omaha — Computers & Components

NEW HAMPSHIRE
Berlin — ENS Computing
Laconia — The Systems House

NEW JERSEY
Lake Hopatcong — Jefferson Computer Center

NEW MEXICO
Albuquerque — Page One Newsstand
Zia Computers
Las Cruces — Zia Computers

NEW YORK
East Rochester — Foxx Computer Services
Great Neck — P & T Computers
Lake Grove — Programs Unlimited
Mooers — Future Distribution
Plattsburg — Adirondack Computer Supply
Rochester — Computer Connections
Wappingers Falls — Software City

NORTH CAROLINA
Atlantic Beach — VBS MicroSystems
Carrboro — Triangle Data Systems
Chapel Hill — Pascal

NORTH DAKOTA
Buxton — Systematics
Riverside — Computer Associates

OHIO
Ashland — Infopro
Cambridge — Comtech
Cincinnati — Cincinnati Computer Center
Video Barn
Columbus — The Book Rack
Cuyahoga Falls — Friend Chips
Euclid — Computer Warehouse
Fairborn — Genesis Micro Systems
Greenville — Hansbarger's
Kettering — Electronic Connexion
Lombard — Complete Computing
Mafield Heights — Programs Unlimited
Marion — Marion Computer Center
Niles — Perfect Computers
North Olmstead — Softwaire Centre International
Poland — Big Byte Computers
Ravenna — Alpha Computer Services, Inc.
St. Clairsville — D & K Computer Sales & Service
Toledo — Computer Gallery
Computer One
Reitz Electronics
Youngstown — Software City

OKLAHOMA
Tulsa — Data Station — Tulsa

OREGON
Hillsboro — Quest Enterprises, Inc.
Portland — Microspace
Nomies Video Tec

PENNSYLVANIA
Exton — Software City
Mt. Penn — Peripherals, Computers & Supplies
Philadelphia — Some Hole In The Wall
Systems Design
Phoenixville — Stevens Computer Center
Warrington — Computers Here

RHODE ISLAND
Cumberland — Mike's CP & Software

SOUTH CAROLINA
Columbia — Bytes & Bits

TENNESSEE
Knoxville — First Byte Computer Co.

TEXAS
Austin — Capitol Micro Computers, Inc.
Electronics Insight
Carrollton — Videoland
Dallas — ABS Business Products
Houston — Computer King
Sibley & Associates
Texas Computer Products
San Antonio — Wagner Bros. Computer Store
Tomball — Computer Libraries

UTAH
Logan — Sound Station
Provo — Lloyd's Business Machines

VERMONT
Rutland — Computer Marketing

VIRGINIA
Fredericksburg — Salem Computer Center
Gloucester Point — Gloucester Electronics
Springfield — Fairfax Computer Corp.
Virginia Beach — Beach Business Machines
Singer Company

WASHINGTON
Bellevue — Commercial Computer Systems
College Place — Discount Computer Supply
Federal Way — Compu-Place
Marysville — Crown Microproducts
More Than Games
Olympia — Axiom Computer
Computer Centers
Renton — Puget Sound Electronics
Seattle — Bits & Chips
Pioneer Computers
R&K Enterprises
Spokane — Computer Shop of Spokane
Quality Software

WEST VIRGINIA
Charleston — The Computer Tree

WISCONSIN
Janesville — Emerald Computers
Stevens Point — Mom's Computers

AUSTRALIA: SYDNEY
Kingsford — Paris Radio Electronics

CANADA: ALBERTA
Edmonton — CompuSoft/Kelly Software

soft sector

HOW TO AVOID CHRONIC AGGRAVATION IN PC COMMUNICATIONS

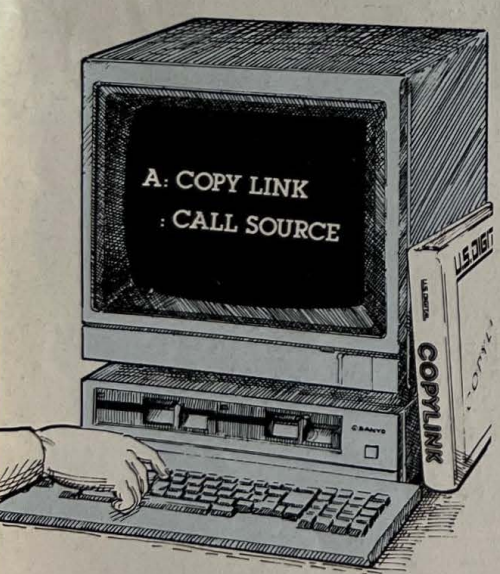
Cheap communications software can drive you crazy.

Your Sanyo PC makes an ideal communications terminal, but it's wise to choose the software carefully. By the time you've picked a modem (and figured out the switch settings), a reliable RS232 card for your MBC 550 (and installed it), and a suitable cable (and successfully connected the two), you don't want to struggle with a thrown together communications program. Once you've gotten the hardware straight, it stays that way, but software headaches don't go away!

And yet chronic aggravation is almost par for the course — because most communications programs are little more than warmed-over public domain packages, spiced up with cryptic blinking "menus" and the like. Documentation is often sketchy and illogical, and the support, if any, is grossly oversold.

Yes, when it comes to modem and file transfer programs, there is such a thing as too cheap (even in the Sanyo market!). The frustration is costly — it slows you down, it's repeatedly irritating, it's bad for business. But it doesn't have to be that way.

Introducing COPYLINK



The choice of most distributors

It costs less to go with the best

COPYLINK is inexpensive but it is not cheap! It is the only communications software under $100 that takes care of you if you're not a programmer. And impresses you if you are! For COPYLINK is simple enough for the beginner and powerful enough for the pro. That's one reason why COPYLINK is carried by 32 major Sanyo distributors and hundreds of dealers, who realize they cannot afford to give their customers headaches — no matter how cheap! Another reason is U.S. Digital's responsive commitment to customer support.

Extraordinary Support

U.S. Digital receives plenty of feedback like this note: "Dear Sirs, Copylink version 2.41 works great. I have encountered no bugs at all. Thanks for all your phone help. It is a pleasure to deal with a software company that cares about their product and is so willing to help the end user." — Peter Silberman, Dallas.

Two Programs in One

COPYLINK can access all the popular databases, bulletin boards, and timesharing systems or send electronic mail. COPYLINK is also a file transfer program with error-checking that quickly copies any type of files from over 35 incompatible micros.

Friendly Flexibility

COPYLINK provides HELP at every level of the program. For most uses, however, you only have to remember the "CALL" command and the name you want to call. Let COPYLINK look up and dial the number from an unlimited directory. In fact, you can make it do everything automatically — logon, write a file to your disk, transmit a message, and logoff. It will even save that file and hangup the phone for you, should you happen to forget — sparing you duplication of effort and gigantic phone bills.

U.S. Digital Corporation
5687-D S.E. International Way
Portland, Oregon 97222
(503) 654-0668
Tele 888521

U.S. DIGITAL™

"The Strongest Link"

In a Microcomputing Magazine article entitled "The Strongest Link," the reviewer sums it up: "For sheer flexibility, the Copylink program from U.S. Digital is a winner. For ease of use, it can be rated as high as any other, and higher than some. The price of Copylink is right, considering the kind of capabilities you get. If you need a good solid communications program, I recommend Copylink."

Ready to run

All versions of MBC 550/555 (even with hard disk), MBC 1150 & 1250 require no installation. COPYLINK works with almost all 103, 212A, and Hayes-compatible modems. It comes with a comprehensive and well-written User's Manual in an attractive binder.

Make a wise business decision

Give us a call to locate the dealer nearest you. If you are a dealer or distributor who has yet to experience the friendly power of COPYLINK, evaluation units are easy to arrange. Communications software is something every dealer is called upon for. Why not save yourself and your customers some headaches and go with the best? If we won't compromise, why should you? Call or Telex U.S. Digital now.

Reasonable prices

Single Format Package . . . . . $ 99.95
Dual Format Package $129.95
(for file transfers)
(P.S. RS232 cards available).

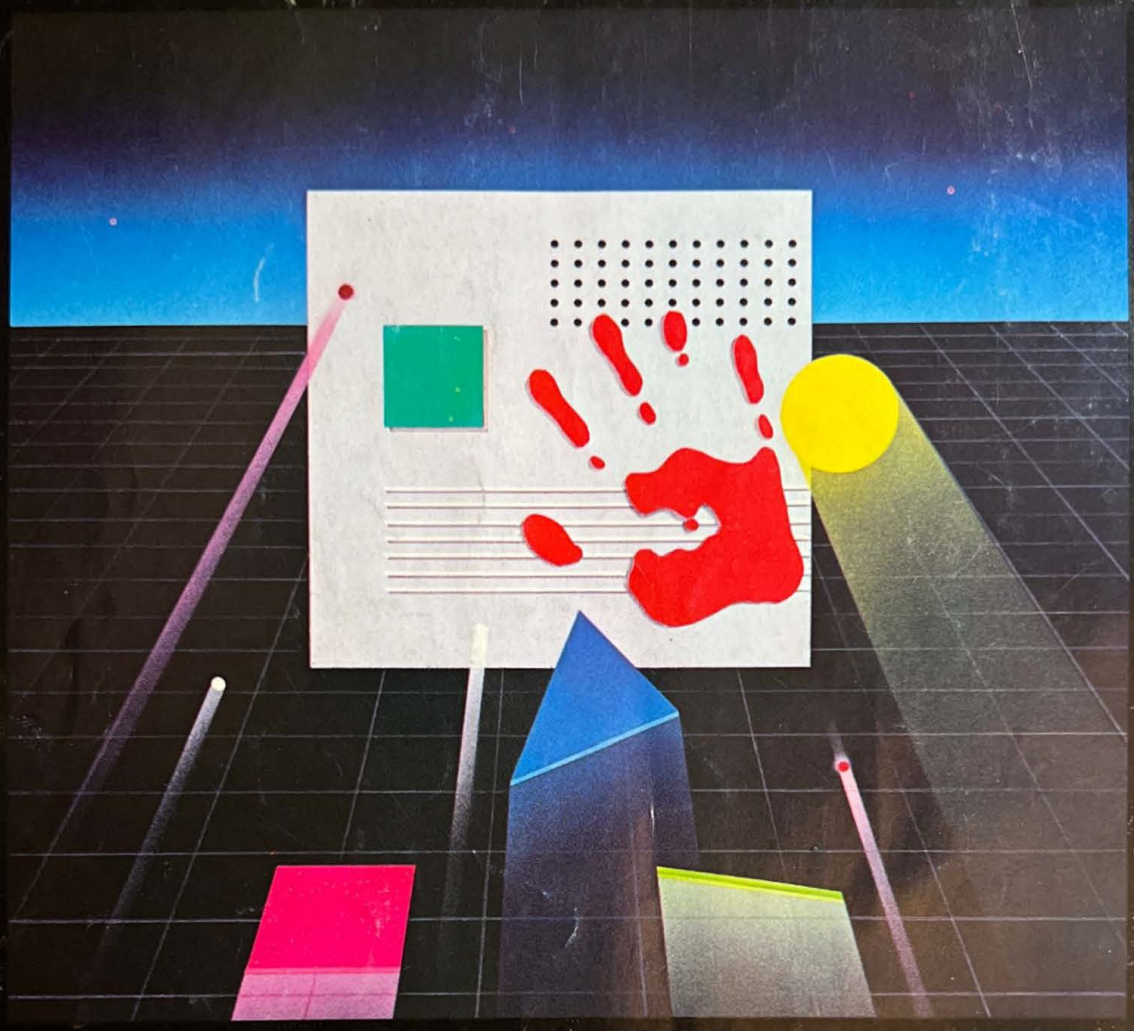
Announcing CP/M for the MBC 550/555

Save those CP/M programs you've invested in! CPeMulator™ makes the Sanyo PC a CP/M-80 machine — without the addition of any hardware. CPeMulator is actually an MSDOS program that makes it possible to run your favorite CP/M programs by simulating a full-fledged 64K 8080 operating system. It works like a charm!

You can load CP/M .COM files using COPYLINK's dual-format package, but CPeMulator also will enable your PC to read Kayproformatted disks. The documentation is very friendly for a program that couldn't be easier to use. Just type "RUN PROGRAM.CPM" and away you go! The complete package is only $99.95 retail.

Easy-Draw™

The Easy Answer to Hi-Res Graphics



For the Sanyo 550/555 • with 128 or 256K • Color or Monochrome

Now you can easily draw hi-res pictures on your Sanyo 550/555 computer system. No programming knowledge is required, simply choose from the menu and start drawing!

Drawing commands include: dots, curves, rays, boxes, cubes, lines, circles, fill, and text. Utilities help you erase, save, and load pictures.

Advanced features for use with 256K include the ability to: move, copy, or invert any portion of a drawing, as well as pasting a portion from one drawing onto another.

Easy-Draw™ also includes a picture disk with three pictures. All this for only $59.95. Remember. . . **Easy-Draw™** The Easy Answer to Hi-Res Graphics.

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Picture-Puzzle™ — An entertaining puzzle game. Comes complete with three pictures, or use the ones you created with **Easy-Draw.™** $39.95

COMING SOON

Easy-Draw™ Printer Utility — Now you can easily print pictures that you have created with **Easy-Draw.™**

Business Graphics — Create impressive charts: pie charts, bar graphs and point/line graphs using spread sheet data.

To order see your local dealer — or call **MIGRAPH (206) 839-6811.**

MIGRAPH SOFTWARE

Dealer inquiries invited. Call (206) 839-6811. Program submissions welcome.

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